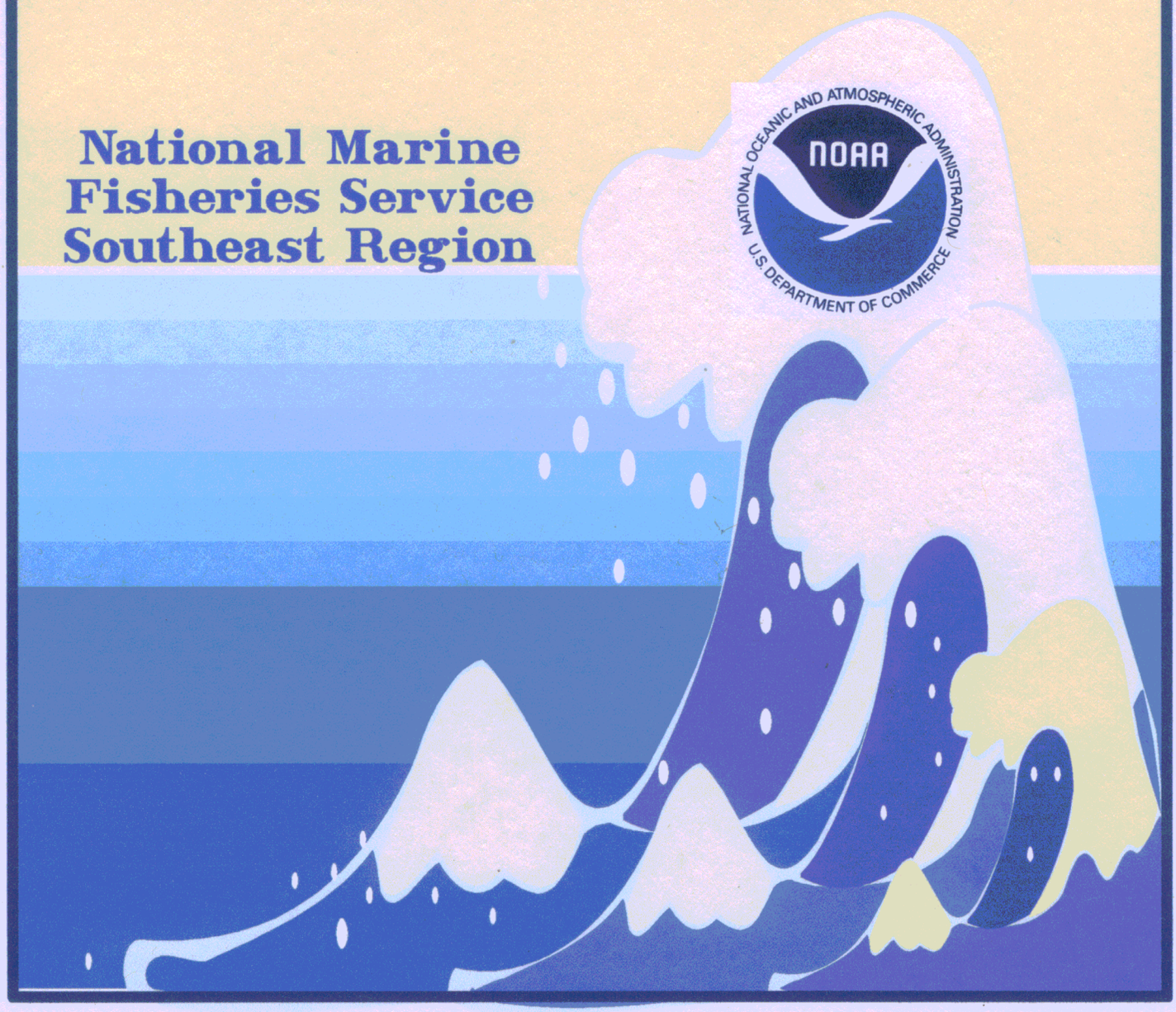
MARFIN

Marine Fisheries Initiative

2001 Annual Report

National Marine Fisheries Service Southeast Region



Marine Fisheries Initiative Program

(MARFIN)

2001 ANNUAL REPORT

January 1 to December 31, 2001

Prepared By:

Ellie F. Roche
and
Jeffrey E. Brown

State/Federal Liaison Office
National Marine Fisheries Service
9721 Executive Center Drive, North
Southeast Regional Office
St. Petersburg, Florida 33702
(727) 570-5324

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PREFACE

The Marine Fisheries Initiative (MARFIN) promotes and endorses programs which seek to optimize economic and social benefits from marine fishery resources through cooperative efforts that evoke the best research and management talents of the Southeast Region. Preference is given to cooperative planning efforts with up to 3-year time horizons. The intent is to focus projects funded by MARFIN into cooperative efforts that provide clear answers for fishery needs covered by the NMFS Strategic Plan[1]. Goals one, two and four are particularly important. For example, a geographically restricted age and growth study of a local fishery resource is of limited value unless it is coordinated with, or verified by, similar studies which span the range of the resource. The value of such studies is also relatively limited unless the results can be combined with other studies to provide a regional assessment of the resource. MARFIN provides this necessary programmatic integration through cooperative planning, accomplishment of program activities and an annual MARFIN Conference.

The MARFIN program was created to bring together scientific, technical, industry, resource conservation and management talents to conduct cooperative programs to facilitate and enhance the management of the marine fishery resources of the Gulf of Mexico and South Atlantic. MARFIN requires the timely dissemination of the results of both successful and unsuccessful efforts, therefore each recipient of funding under this program is obligated to attend a MARFIN conference to report project findings. The bycatch issue remains a focal point of research needs for the Southeast Region. Critical reef fish fisheries are also being addressed, from efforts to reduce catches associated with shrimp trawls to life history studies, as well as fishery-dependent and independent characterization work. Delineation of king mackerel stocks continues to be an area of important research effort toward mitigating management of this commercially and recreationally vital fishery. The MARFIN program also continues to diversify its research base and show its ability to respond to critical current fisheries issues by funding studies characterizing shark fisheries and providing basic biological information for responsible management of various shark species. Research on economic and sociological impacts of fisheries regulations illustrates the recognition by the MARFIN program that all aspects of a fishery must be understood to provide adequate fisheries management.

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[1]NMFS Strategic Plan Goals:

- Rebuild overfished marine fisheries;
- Maintain currently productive fisheries;
- Advance fishery forecasts and ecosystem models;
- Integrate conservation of protected species and fisheries management;
- Improve seafood safety;
- Protect living marine resource habitat;
- Improve the effectiveness of international fisheries relationships; and
- Reduce impediment to U.S. aquaculture.

HISTORY OF THE MARFIN PROGRAM

The MARFIN Program received its initial impetus from a 1983 discussion paper entitled: "Research Needs For Information Leading To Full and Wise Use of Fishery Resources In The Gulf of Mexico," by Dr. Thomas D. McIlwain of the Gulf Coast Research Laboratory while he was in the office of then Representative Trent Lott. This paper, sometimes referred to as the Lott-McIlwain paper, proposed an additional investment in fisheries research and development in the Gulf of Mexico to increase the economic contribution of marine fisheries, develop more valuable products from existing fisheries, develop export markets, forecast variation in yields and conserve and maintain presently exploited resources.

The next step in the evolution of MARFIN was the preparation and publication of the Marine Fisheries Initiative - Gulf of Mexico Phase. This plan was developed by a joint industry, federal, state and academic task force, detailing the research and development efforts necessary to enhance, restore and maintain fisheries in the Gulf of Mexico. The program focused on funding projects which had the greatest probability of maintaining and improving existing fisheries, increasing revenues for the domestic industry, increasing yields from fisheries and generating increased recreational opportunity and harvest potential.

In 1992, the MARFIN program was expanded to include a South Atlantic component (North Carolina, South Carolina, Georgia and the Atlantic coast of Florida). The goals and objectives of the South Atlantic Phase of MARFIN are described in Special Report No. 13 of the Atlantic States Marine Fisheries Commission, Marine Fisheries Initiative (MARFIN) South Atlantic Phase.

The Lott-McIlwain paper and the Marine Fisheries Initiative publication were instrumental in gaining public support for the MARFIN program. On December 4, 1985, the conference report of the House and Senate that appropriated funds for the Departments of Commerce, Justice, State, the judiciary and related agencies for the fiscal year (FY) ending September 30, 1986, allocated $2,850,000 for the MARFIN Program. The following list represents funding for each year from the start of the MARFIN program until the current year:

* Fiscal Year 1986 - $2,850,000
* Fiscal Year 1987 - $3,500,000
* Fiscal Year 1988 - $3,500,000
* Fiscal Year 1989 - $3,000,000
* Fiscal Year 1990 - $3,000,000
* Fiscal Year 1991 - $2,986,000
* Fiscal Year 1992 - $4,000,000 (This includes $500,000 of the South Atlantic MARFIN and $1,300,000 for shrimp trawl bycatch studies)
* Fiscal Year 1993 - $3,540,000
* Fiscal Year 1994 - $3,542,000

* Fiscal Year 1995 - $3,540,000
* Fiscal Year 1996 - $2,760,000 (No new projects were accepted during FY 1996 due to a reduction in congressional allocation, and because of the large number of active multi-year projects selected during previous funding cycles.)
* Fiscal Year 1997 - $3,000,000
* Fiscal Year 1998 - $3,000,000
* Fiscal Year 1999 - $3,000,000 (This includes $500,000 for the Northeast Region)
* Fiscal Year 2000 - $2,750,000 No new projects were accepted during FY 2000 due to a reduction in congressional allocation, and because of the large number of active multi-year projects selected during previous funding cycles.)
* Fiscal Year 2001 - $3,500,000 (This includes $250,000 for the Northeast Region and $750,000 for red snapper research)

MARFIN PROGRAM ORGANIZATION AND ADMINISTRATION

The NMFS Southeast Regional Director reformed the MARFIN Panel in FY 1992 when the program was expanded to cover the South Atlantic (Appendix 1). Each member of the MARFIN Panel provides individual recommendations to the Regional Director on MARFIN priorities and financial assistance applications. The MARFIN Panel membership is as follows:

- One state marine conservation agency representative each, from the Gulf of Mexico and the South Atlantic areas.
- One representative each from the Gulf of Mexico and the South Atlantic commercial fishing industries.
- The Executive Directors of the Gulf of Mexico and South Atlantic Fishery Management Councils.
- The Executive Directors of the Gulf and Atlantic States Marine Fisheries Commissions.
- One representative each from the Gulf of Mexico and the South Atlantic recreational fishing industries.
- One representative each from the Gulf of Mexico and the South Atlantic Sea Grant Universities.
- A NMFS Southeast Fisheries Science Center Technical representative.
- The NMFS Southeast Region Program Officer acts as an advisor to the Regional Director and MARFIN Panel members concerning Federal, Department of Commerce and NOAA financial assistance administration requirements.

Alternate representatives to the MARFIN Panel serve when necessary. Individual Panel members are appointed by the NMFS Southeast Regional Director for staggered terms.

The Regional Director of the NMFS Southeast Regional Office (SERO) relies on recommendations from individual members of the MARFIN Panel, the MARFIN Scientific Panel, and the Regional Program Office in selecting each year's projects.

Each year the MARFIN Panel and NMFS administrators and scientists identify areas of emphasis for the next year's competitive financial assistance program. These areas of emphasis are published in the Federal Register for public comment. After public review and comment, an announcement of funding availability through the competitive MARFIN financial assistance program is published as a solicitation in the Federal Register.

The NMFS Southeast Regional State/Federal Liaison Office staff is responsible for the overall administration of all NMFS Southeast grants and cooperative agreement programs, including MARFIN (Appendix 2). Their responsibilities include planning, application and selection, negotiation, performance, monitoring and close-out of all assigned competitive and noncompetitive financial assistance programs. A NMFS Southeast Regional scientific or technical expert is assigned as the Technical Monitor for each MARFIN project. The Technical Monitor is responsible to the State/Federal Liaison Office Program Officer for all technical and cooperative aspects of assigned projects (Appendix 3). The NOAA Grants Officer is responsible for the overall administration of each NMFS financial assistance award issued to recipients outside of the Federal government and cooperates with the NMFS Southeast Region State/Federal Liaison Office in administering each financial assistance award.

FY 2001 Program Highlights

- The Thirteenth Annual MARFIN Conference was held in Tampa, Florida on January 16-17, 2002.
- Ecological factors limiting density and regulating growth and condition for gag grouper are being determined.
- Examination of factors resulting in release mortality of undersized red grouper, gag, red snapper and vermillion snapper are to be evaluated. Factors include depth caught and gear used.
- Movement patterns and spawning habitat of red hind grouper are being studied in a newly established Marine Fishery Reserve in the U.S. Virgin Islands.
- The biology of red snapper is being investigated by focusing on stock determination using otolith microchemistry and genetics.
- The economics of charter and party boat fishing is being examined for the northern Gulf and for the eastern Gulf of Mexico and southern U.S. Atlantic states.
- The nursery grounds of red snapper in the northern Gulf of Mexico are being investigated and characterized by environmental parameters.
- Factors involved in the release mortality of reef fish is being investigated.

Overview of Ongoing Research Projects

The following project description provides the title and objectives/goals of ongoing research funded through the MARFIN Program in the Southeast Region:

A. Bycatch

1. Shrimp Trawl Fisheries

a. "Enhancing Industry Contributions Towards Documentation of Fishing Effort and Bycatch Reduction in the Shrimp Fishery in the Southeastern United States" - a one year, $535,095 project to field test ten promising industry bycatch reduction devices (BRD). The testing will include underwater hydrodynamic performance tests, prototype BRD construction and tuning, and actual field certification testing aboard commercial shrimp trawls fishing within U.S. federal waters. **MARFIN Award NA17FF2009**

b. "Genetic Impacts of Shrimp Trawling on Gulf Red Snapper" - a one year, $68,825 project that will assay allelic variations at 20 nuclear-encoded microsatellites from samples taken during shrimp trawling and representing five subregions in the northern Gulf of Mexico, determine whether juveniles taken as bycatch represent random samples of genotypes within each subregion, and determine whether red snapper assemblages in the five subregional localities are increasing or decreasing in effective population size. **MARFIN Award NA17FF2014**

c. "Behavior and Swimming Performance of Red Snapper, *Lutjanus campechanus*: Its Application to Bycatch Reduction"- the first year of a three year, $212,997 project to consider the effects of size, season, and time of day on red snapper behavior and swimming. With the aim of using this information to produce more effective bycatch reduction. In addition the project will evaluate a vortex generating bycatch reduction device to assess its ability to reduce capture of juvenile red snapper during shrimp trawl operations. **MARFIN Award NA17FF2031**

2. Reef fish fisheries

a. "Evaluation of Multiple Factors Involved in Release Mortality of Undersized Red Grouper, Gag, Red Snapper and Vermillion Snapper" - the second year of a two year, $327,783 project to obtain catch and release mortality rates by depth and gear for red grouper, gag, red snapper, and vermillion snapper. The goal is also to test the hypothesis that vermillion snapper do not survive release and the hypothesis that hook and release mortality is far greater than depth induced mortality for red snapper. Tagging studies will be carried out to determine shedding rate and to obtain movement patterns for the four study species. **MARFIN Award NA87FF0421**

b. "Evaluation of the Efficacy of Current Minimum Size Regulations for Selected Reef Fish Based on Release Mortality and Fish Physiology" - the first year of a two year, $359,804 project that will determine if red grouper are more susceptible to depth-induced mortality than red snapper, test whether smaller red grouper survive rapid decompression better than larger red grouper, and to obtain catch and release mortality rates for red grouper, red snapper, vermilion snapper, and mangrove snapper. The first two areas of investigation will center around the swim bladder's size and structures such as the bundles of rete mirabile and the amount of gas gland cells. **MARFIN Award NA17FF2010**

c. "Estimating Discard Rate and Release Mortality of Red Snapper in Texas Fisheries" - the first year of a three year, $354,244 project to estimate delayed release mortality of red snapper under controlled conditions and find physiological indicators of delayed release mortality using blood samples from caught fish. Using this information the project will also estimate the discard rate and delayed release mortality in commercial and recreational fisheries. In addition released red snapper will also be tagged to estimate recapture rate by the fisheries. **MARFIN Award NA17FF2012**

B. Reef Fish

1. Basic Biological Data

a. "Ecological Factors Limiting Density and Regulating Growth and Condition for Gag Grouper: A Definitive Test for the Role of Shelter" - the second year of a two year, $175,158 project to determine if reef habitat, specifically available shelter, limits local densities of gag grouper and thereby regulates the growth and condition of gag on the shallow continental shelf. Reef shelter will be manipulated in a field experiment involving intensive non-destructive sampling of experimental reefs. **MARFIN Award NA97FF0350**

b. "Aspects of the Life History of the Red Grouper, *Epinephelus morio*, Along the Southeastern United States" - the second year of a two year, $102,879 project to examine otoliths from red grouper to generate age-length keys and to determine sex ratio, and size and age at maturity. The project will also estimate population size using Virtual Population Analysis. **MARFIN Award NA97FF0347**

c. "Nursery Habitats of Red Snapper (*Lutjanus campechanus*) in the North West Gulf of Mexico" - a one year, $100,000 project to identify and characterize nursery habitats of red snapper on inner shelf areas in the northwestern Gulf of Mexico. The quality of different habitat will be evaluated and related to spatial and temporal patterns of use. **MARFIN Award NA97FF0346**

d. "Red snapper *Lutjanus campechanus* in the Northen Gulf of Mexico: Age and Size Composition of the Commercial Harvest and Morality of Regulatory Discards" - the first of a

three year, $298,016 project to obtain length and ages of red snapper randomly selected from the commercial fishery in the northern Gulf of Mexico which will allow the description of the size and age composition of the harvest. Observers on board commercial vessels will qualitatively assess release mortality of red snapper regulatory discards. **MARFIN Award NA17FF2007**

2. Population assessment of reef fish

a. "Genetic Stock Identification of Scamp, *Mycteroperca phenax*, Black Grouper, *Mycteroperca bonaci*, and Red Grouper, *Epinephelus morio*, in the Western Atlantic" - the third year of a three year, $276,672 project to identify the stock structure of scamp, black and red grouper based upon genetic analysis of mitochondrial and nuclear DNA and to examine the genetic variation within and among populations of these species. The project will also test the hypothesis that changing sex ratios in protogynous species results in changes in the genetic structure of populations. **MARFIN Award NA87FF0423**

b. "Stock Structure of Red Snapper in the Northern Gulf of Mexico: Is their Management as a Single Unit Stock Justified Based on Otolith Microchemistry" - the third year of a three year, $187,356 project to determine the relative contributions of regional nursery areas to contemporary, offshore adult congregations, to determine long term movement and mixing rates of red snapper across the region, and to determine the nursery of origin of juvenile red snapper taken in shrimp trawls. Otolith microchemistry, as determined by inductively coupled - plasma mass spectrometry, will be used to link fish with nursery habitats. **MARFIN Award NA87FF0425**

c. "Stock Structure of Red Snapper in the Northern Gulf of Mexico: Is their Management as a Single Unit Stock Justified Based on Genetic Variation" - the third year of a three year, $404,534 project to determine whether independent genetic subpopulations of red snapper exist in the northern Gulf, determine the number of breeders at different localities across the region and to determine whether changes in patterns of genetic variation and effective population size over decadenal time scales are consistent with the hypothesis that stock size has decreased significantly the last two to three decades. The project will also examine red snapper taken as shrimp bycatch to add a new dimension to assessment of the impact this fishery has on red snapper. **MARFIN Award NA87FF0426**

d. "Stock Structure of Red Porgy, *Pagrus pagrus*, in the North Atlantic" - the first year of a three year, $280,092 project to determine stock identification in red porgy by examining variation in mtDNA and nuclear microsatellites. Samples will be taken in the South Atlantic Bight, which has been over-fished for red porgy, and in the Gulf of Mexico, where red porgy populations are in better condition. **MARFIN Award NA17FF2008**

3. Management of reef fish

a. "Partitioning Release Mortality in the Undersized Red Snapper Bycatch: Comparison of Depth vs. Hooking Effect" - the second year of a two year, $116,871 project to compare factors possibly leading to release mortality in red snapper. The project will use hyperbaric chambers to simulate field conditions in the lab to investigate the effects of rapid pressure changes on red snapper physiology. Red snapper caught aboard charter boats, head boats, and recreational vessels will be caught using circle and J hooks and tagged. Returns captures will be compared to determine hook mortality. **MARFIN Award NA97FF0349**

4. Evaluation of marine reserves as a fishery management tool

a. "Investigating Movement Patterns and Spawning Habitat of Red Hind Grouper in a Newly Established Marine Fishery Reserve in the U.S. Virgin Islands" - the second year of a two year, $141,423 project to visually survey reef fish population structure and density of red hind grouper spawning aggregations. An intensive tag/release/recapture and sonic tagging program will also be undertaken to identify the source of groupers coming to the spawning sites. **MARFIN Award NA97FF0348**

b. "Marine Reserve Effectiveness in Restoring Coastal Food Webs: An Experimental Test Using the Special Protection Areas and an Ecological Reserve in the Florida Keys National Marine Sanctuary" - the first year of a two year, $183,578 project to examine the impacts of large piscivorus fishes on food web structure in and around coral reefs, the importance of linkages among seagrass and coral reefs in the re-establishment of these food webs, and the effects of habitat structure on the success of marine reserves. The project will take advantage of the rare opportunity to use replicated 'no-take' (predator rich) and unprotected (predator poor) reefs in the Florida Keys National Marine Sanctuary. **MARFIN Award NA17FF2015**

5. The contributions of live-bottom habitat

a. "Maintenance of Critical Fish Spawning Habitat: Reproduction of the Ivory Tree Coral *Oculina varicosa*" - a one year, $68,396 project to investigate the reproduction of deep and shallow water populations of *Oculina varicosa* with a view to enhancement of restoration efforts in deep water. Periodic samples will be taken and analyzed histologically to determine periodicity of reproduction, and biochemically to determine how internal cycling of nutrient reserves relates to fecundity and reproductive cycles. **MARFIN Award NA87FF0434**

C. Coastal Migratory Pelagic Fisheries

a. "Renewal of an Observer Program to Monitor the Directed Commercial Shark Fishery in the Gulf of Mexico and the South Atlantic" - a one year, $149,910 project to re-establish and expand a cooperative shark resource data collection system designed to enhance the reliability of management strategies for the shark fisheries in the southeastern U.S. This project will provide baseline characterization data on the species composition, relative abundance, and size composition within species for coastal shark species groups by depth and season in each regional fishery. **MARFIN Award NA97FF0041**

b. "Stock Structure of Dolphin, *Coryphaena hippurus*, in the Western Central Atlantic as Determined by Molecular Genetic Techniques" - the second year of a three year, $263,280 project to identify the stock structure of dolphin in the west central Atlantic using genetic analysis of mitochondrial and nuclear DNA. The project will examine the genetic variation within and among populations of dolphin and will test the hypothesis that two distinct populations or stocks exist in the region. Mitochondrial DNA will be analyzed by restriction endonuclease digestion of the ND-1 region. Sampling will include northern and southern aggregations in the west central Atlantic. **MARFIN Award NA87FF0427**

c. "Discrimination Among U.S. South Atlantic and Gulf of Mexico King Mackerel Stocks with Otolith Shape Analysis and Otolith Microchemistry" - the first year of a two year, $168,070 project to develop natural tags based on otolith microchemistry and shape analysis that will be used to estimate the relative contribution of each stock to the winter fishery off southeastern Florida and establish methods enabling annual estimation of stock mixing to facilitate more effective management of U.S. king mackerel stocks. **MARFIN Award NA17FF2013**

D. Groundfish and Estuarine Fishes

No active grants at this time.

E. General

a. "An Integrated Economic Analysis of Alternative Bycatch, Commercial, and Recreational Policies for the Recovery of the Gulf of Mexico Red Snapper" - a one year, $88,589 project to conduct an economic analysis of alternative policies aimed at increasing red snapper stock levels in the Gulf of Mexico. The specific objectives include modifying the General Bioeconomic Fisheries Simulation Model (GBFSM) to include fractional license and fractional gear policies in the shrimp fishery, based on the GBFSM, developing a dynamic optimization model that incorporates a sustainability criterion, and estimating the increase in red snapper stocks associated with alternative fixed and flexible bycatch and red snapper policies. **MARFIN Award NA87FF0420**

b. "An Assessment of the Recreational Demand for Gulf of Mexico Red Snapper" - a one year, $97,526 project to assess whether red snapper regulations, charter and private/rental boat use, and targeting single versus aggregate species have an impact on the recreational demand for red snapper and its economic value. Specific objectives include examining the Southeast MRFSS data using descriptive statistics and process the data so the it is manageable for the estimation of recreation demand functions and to determine whether charter boat recreation demand and its value is statistically different from private/rental boat recreation demand and its value. **MARFIN Award NA87FF0432**

c. "Defining and Identifying Fishing Dependent Communities: Development and Confirmation of a Protocol" - the second year of a two year, $220,050 project to develop a definition of fishery dependent communities and to develop a protocol for identifying communities empirically. The project is also designed to collect demographic information on fishing dependent families. **MARFIN Award NA87FF0433**

d. "Intercept Surveys of Recreational Spiny Lobster Fishermen in the Florida Keys" - a one year, $39,017 project to acquire information on the recreational spiny lobster fishery by conducting intercept interviews. The study will collect catch, effort, and demographic data that will be used to evaluate the accuracy of similar data generated by the Florida Fish and Wildlife Conservation Commission (FWC) mail surveys. Results from the intercept survey will aid the FWC in developing management options for limiting the potential growth in this fishery. **MARFIN Award NA17FF2011**

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(2) Christmas, J. Y., David J. Etzold, Thomas D. McIlwain and Larry Simpson, eds. 1985. Marine Fisheries Initiative: Gulf of Mexico Phase. Gulf States Marine Fisheries Commission Report 10.

(3) Joseph, Edwin B., David M. Cupka, Victor G. Burrell, Jr. and Peter J. Elridge. 1988. Marine Fisheries Initiative (MARFIN): South Atlantic Phase. Atlantic States Marine Fisheries Commission Special Report No. 13.

Appendix 1: MARFIN PANEL MEMBERS

Dr. Robert Stickney
Gulf of Mexico Sea Grant Representative
Texas Sea Grant College Program
2700 Earl Rudder Freeway South
College Station, TX 77845

Mr. Julius Collins
Gulf of Mexico Commercial Representative
163 Creekbend Drive
Brownsville, TX 78521

Mr. James Franks
Gulf of Mexico Recreational Representative
Gulf Coast Research Laboratory
703 East Beach Drive
Ocean Springs, MS 39566

Mr. Larry B. Simpson
Gulf States Marine Fisheries Commission Representative
Gulf States Marine Fisheries Commission
2404 Government Street
Ocean Springs, MS 39564

Mr. Wayne Swingle
Gulf of Mexico Fishery Management Council Representative
Gulf of Mexico Fishery Management Council
3018 U.S. Hwy. 301 N., Suite 1000
Tampa, FL 33619

Mr. William (Corky) S. Perret
Gulf States Representative
MS Department of Marine Resources
1141 Bayview Ave., Suite 101
Biloxi, MS 39530

Mr. Benjamin Hartig III
South Atlantic Commercial Representative
9277 SE Sharon Street
Hobe Sound, FL 33455

Appendix 1 (CON'T): MARFIN PANEL MEMBERS

Mr. Robert Mahood
South Atlantic Fisheries Management Council Representative
1 Southpark Circle
Suite 306
Charleston, SC 29407-4699

Dr. Louis Daniel
South Atlantic State Representative
NC Dept. of Environment, Health & Natural Resources
3441 Arendell Street
Morehead City, NC 28557

Dr. Lisa Kline Desfosse (Alternate)
Atlantic States Marine Fisheries Commission Representative
1444 Eye Street, N.W.
Sixth Floor
Washington, D. C. 20035

Dr. Mac Rawson
South Atlantic Sea Grant Representative
University of Georgia
Marine Science Building, Room 220
Athens, GA 30602

Mr. Wayne Lee
South Atlantic Recreational Representative
300 Raymond Avenue
Kil Devil Hills, NC 27948

Dr. Scott Nichols
NMFS Technical Representative
Laboratory Director
National Marine Fisheries Service
3209 Frederic Street
Pascagoula, MS 39567

Appendix 2: NMFS SOUTHEAST REGIONAL MARFIN ADMINISTRATIVE STAFF

Ellie Francisco Roche
Chief, State/Federal Liaison Office
National Marine Fisheries Service
9721 Executive Center Drive North
St. Petersburg, FL 33702

Jeffrey E. Brown
Fisheries Grants Specialist
Fishery Biologist
State/Federal Liaison Office
National Marine Fisheries Service
9721 Executive Center Drive North
St. Petersburg, FL 33702

Cynthia T. Binkley
Fisheries Grants Specialist
State/Federal Liaison Office
National Marine Fisheries Service
9721 Executive Center Drive North
St. Petersburg, FL 33702

Rita F. Daniels
Grants Assistant
State/Federal Liaison Office
National Marine Fisheries Service
9721 Executive Center Drive North
St. Petersburg, FL 33702

Appendix 3: NMFS TECHNICAL MONITORS

Dr. Jose Castro	Miami Laboratory
Dr. Jean Cramer	Miami Laboratory
Ms. Nancie Cummins	Miami Laboratory
Mr. Douglas A. Devries	Panama City Laboratory
Dr. Pete Eldridge	Southeast Regional Office
Mr. Daniel Foster	Mississippi Laboratory
Mr. Gregg Gitschlag	Galveston Laboratory
Dr. Chris Gledhill	Mississippi Laboratory
Mr. Douglas E. Harper	Miami Laboratory
Dr. Stephen Holiman	Southeast Regional Office
Dr. Gene Huntsman	Beaufort Laboratory
Dr. Allyn G. Johnson	Panama City Laboratory
Dr. Dennis Lee	Miami Laboratory
Dr. John Merriner	Beaufort Laboratory
Dr. James Nance	Galveston Laboratory
Dr. Clay Porch	Panama City Laboratory
Dr. Allyn Powell	Beaufort Laboratory
Dr. Eric D. Prince	Miami Laboratory
Mr. William Richards	Miami Laboratory
Ms. Elizabeth Scott-Denton	Galveston Laboratory
Mr. Joseph W. Smith	Beaufort Laboratory
Mr. Mike Travis	Southeast Regional Office
Dr. Douglas S. Vaughan	Beaufort Laboratory
Dr. John Vondruska	Southeast Regional Office
Dr. James Waters	Beaufort Laboratory
Mr. John Watson	Mississippi Laboratory
Mr. Wayne N. Witzell	Miami Laboratory
Dr. Cheryl Woodley	Charleston Laboratory
Ms. Zoula Zein-Eldin	Galveston Laboratory
Dr. Roger Zimmerman	Galveston Laboratory

Appendix 4 - Federal Register Notice
Volume 66, Number 36
February 22, 2001

DEPARTMENT OF COMMERCE

National Oceanic and Atmospheric Administration

[Docket No. 001214350-0350-01, I.D. 112700B]

RIN 0648-Z098

Financial Assistance for Research and Development Projects in the Gulf of Mexico and Off the U.S. South Atlantic Coastal States; Marine Fisheries Initiative (MARFIN)

AGENCY: National Marine Fisheries Service (NMFS), National Oceanic and Atmospheric Administration (NOAA), Commerce.

ACTION: Notice.

SUMMARY: Subject to the availability of funds, NMFS, through its MARFIN program, financially assists persons in carrying out research and development projects that optimize the use of fisheries in the Gulf of Mexico and off the South Atlantic States of North Carolina, South Carolina, Georgia, and Florida involving the U.S. fishing industry (recreational and commercial), including fishery biology, resource assessment, socio-economic assessment, management and conservation, selected harvesting methods, and fish handling and processing. This notice describes how to apply for such assistance and how NMFS selects applications for funding.

DATES: Applications for funding under this program will be accepted between February 22, 2001 and 5 p.m. eastern daylight time on April 23, 2001. Applications received after that time will not be considered for funding. No facsimile applications will be accepted.

ADDRESSES: Send applications to: Ellie Francisco Roche, Chief, State/Federal Liaison Office, Southeast Regional Office, NMFS, 9721 Executive Center Drive, N., St. Petersburg, FL 33702.

FOR FURTHER INFORMATION CONTACT: Ellie Roche; telephone (727) 570–5324.

SUPPLEMENTARY INFORMATION:

I. Authority

The Secretary of Commerce (Secretary) is authorized under 15 U.S.C. 713c-3(d) to carry out a national program of research and development addressed to such aspects of U.S. fisheries (including, but not limited to, harvesting, processing, marketing and to associated infrastructures), if not adequately covered by projects assisted under 15 U.S.C. 713c-3(c), as the Secretary deems appropriate.

II. Catalog of Federal Domestic Assistance

This program is described in the "Catalog of Federal Domestic Assistance" (CFDA) under program number 11.433, Marine Fisheries Initiative (MARFIN).

III. Program Description

MARFIN is a competitive Federal assistance program that funds projects that seek to optimize research and development benefits from U.S. marine fishery resources through cooperative efforts involving the best research and management talents to accomplish priority activities. Projects funded under MARFIN provide answers for fishery needs covered by the NMFS Strategic Plan, available from the Southeast Regional Office (see **ADDRESSES**), particularly those goals relating to: rebuilding overfished marine fisheries, maintaining currently productive fisheries, and integrating conservation of protected species and fisheries management. Areas of emphasis for MARFIN are formulated from recommendations received from non-Federal scientific and technical experts, and from NMFS research and operations officials.

IV. Funding Availability

Approximately $2.20 million may be available in fiscal year (FY) 2001 for funding projects. This amount includes possible in-house projects and $750,000 for 1-year projects for red snapper research. (See XI. Project Funding Priorities.) Publication of this notice does not obligate NMFS to award any specific cooperative agreement nor to obligate all or any parts of the available funds.

Project proposals accepted for funding for a project period over 1 year that include multiple project components and severable tasks to be funded during each budget period do not compete for funding in subsequent budget periods within the approved project period. However, funding for subsequent project components is contingent upon the availability of funds and satisfactory performance and will be at the sole discretion of the agency.

V. No Matching Requirements

Cost-sharing is not required for the MARFIN program. Applications must provide the total budget necessary to accomplish the project, including contributions and/or donations. The appropriateness of all cost-sharing will be determined on the basis of guidance provided in applicable Federal cost principles. If an applicant chooses to cost-share, and if that application is selected for funding, the applicant will be bound by the percentage of the cost share reflected in the cooperative agreement award.

The non-Federal share may include the value of in-kind contributions by the applicant or third parties or funds received from private sources or from state or local governments. Federal funds may not be used to meet the non-Federal share of matching funds, except as provided by Federal statute. Third party in-kind contributions may be in the form of, but are not limited to, personal services rendered in carrying out functions related to the project and use of real or personal property owned by others (for which consideration is not required) in carrying out the projects. 15 U.S.C. 713c-3(c)(4)(B) provides that the amount of the grant is no less than 50

percent of the estimated cost of the project.

Costs incurred in either the development of a project or the financial assistance application, or time expended in any subsequent discussions or negotiations prior to the award, are neither reimbursable nor recognizable as part of the recipient's cost share.

VI. Type of Funding Instrument

The funding instrument will be a cooperative agreement since NMFS will be substantially involved in developing each project's research priorities and assisting in the research.

VII. Eligibility Criteria

A. Eligible applicants include institutions of higher education, hospitals and other nonprofit organizations, commercial organizations, and state, local and Indian tribal governments. Federal agencies or institutions are not eligible. Foreign governments, organizations under the jurisdiction of foreign governments, and international organizations are excluded for purposes of this solicitation since the objective of the MARFIN program is to optimize research and development benefits from U.S. marine fishery resources (see III. Program Description).

B. The Department of Commerce, National Oceanic and Atmospheric Administration (DOC/NOAA) is strongly committed to broadening the participation of Historically Black Colleges and Universities, Hispanic Serving Institutions, and Tribal Colleges and Universities in its educational and research programs. DOC/NOAA's goals are to achieve full participation by Minority Serving Institutions (MSI) in order to advance the development of human potential, to strengthen the nation's capacity to provide high-quality education, and to increase opportunities for MSIs to participate in and benefit from Federal financial assistance programs. DOC/NOAA encourages all applicants to include meaningful participation of MSIs.

VIII. Award Period

The award period for the project may be up to 3 years, consisting of one, two, or three budget periods. The award period depends upon the duration of funding requested in the application, the decision of the NMFS selecting official on the amount of funding, the results of post-selection negotiations between the applicant and NOAA officials, and pre-award review of the application by NOAA and Department of Commerce (DOC) officials. Normally, each project budget period will be 12 months in duration.

IX. Indirect Costs

The total dollar amount of the indirect costs proposed in an application under this program must not exceed the indirect cost rate negotiated and approved by a cognizant Federal agency prior to the proposed effective date of the award or 25 percent of the Federal share of the total proposed direct costs dollar amount in the application, whichever is less. A copy of the current, approved, negotiated Indirect Cost Agreement with the Federal Government must be included with the application.

X. Application Requirements, Forms and Kit

Before submitting an application under this program, applicants should contact the NMFS Southeast Regional Office for a copy of this solicitation's MARFIN Application Package (see **ADDRESSES**).

Applications for this project's funding must be complete and in accordance with instructions in the MARFIN Application Package. Project applications must identify the principal participants, and include copies of any agreements describing the specific tasks to be performed by participants. Project applications should: give a clear presentation of the proposed work, the methods for carrying out the project, its relevance to managing and enhancing the use of Gulf of Mexico and/or South Atlantic fishery resources, and cost estimates as they relate to specific aspects of the project. Budgets must include a detailed breakdown, by category of expenditures, with appropriate justification for both the Federal and non-Federal shares.

Applications should exhibit familiarity with related work that is completed or ongoing. Where appropriate, proposals should be multi-disciplinary. In addition to referencing specific area(s) of special interest, proposals should state whether the research applies to the Gulf of Mexico only, the South Atlantic only, or to both areas. Successful applicants may be required to collect and manage data in accordance with standardized procedures and formats approved by NMFS and to participate with NMFS in specific cooperative activities that are determined by consultations between NMFS and successful applicants before project grants are awarded. All applications must include funding for the principal investigator to participate in an annual MARFIN Conference in Tampa, FL at the completion of the project.

Coordinated efforts involving multiple institutions or persons are encouraged. Women and minority owned and operated non-profit organizations are encouraged to apply. Applicants should not assume prior knowledge on the part of NMFS as to the merits of the project described in the application. Applications must be one-sided and unbound. All incomplete applications are returned to the applicant. Ten copies (one original and nine copies) of each application are required and should be submitted to the NMFS Southeast Regional Office, State/Federal Liaison Office (**SEE**). The Office of Management and Budget (OMB) has approved 10 copies, under OMB Control No. 0648–0175.

XII. Project Funding Priorities

A. Priority is given to funding projects that have the greatest probability of recovering, maintaining, improving, or developing fisheries; improving the understanding of factors affecting recruitment success; and/or generating increased values and recreational opportunities from fisheries. Projects are evaluated as to the likelihood of achieving these objectives, with consideration of the magnitude of the eventual economic or social benefits that may be realized. Priority is given to funding projects in the subject areas listed below, but proposals in other areas are considered on a funds-available basis. There is no preference between short-term projects and long-term projects.

1. Bycatch

The bycatch of biological organisms (including interactions with sea turtles and marine mammals) by various fishing gears can have wide-reaching impacts from a fisheries management and an ecological standpoint, with the following major concerns:

a. *Shrimp trawl fisheries.* Studies are needed to contribute to the regional shrimp trawl bycatch program (including the southern U.S. Atlantic rock shrimp fishery) being conducted by NMFS in cooperation with state fisheries management agencies, commercial and recreational fishing organizations and interests, environmental organizations, universities, Councils, and Commissions. Specific guidance and research requirements are contained in the Cooperative Bycatch Plan for the Southeast, available from NMFS (see **ADDRESSES**). In particular, the studies should address:

(1) Data collection and analyses to expand and update current bycatch estimates, temporally and spatially emphasizing areas of greatest impact by shrimping. Sampling effort should include estimates of numbers, weight, and random samples of size (age) structure of associated bycatch complex, with emphasis on those overfished species under the jurisdiction of the Councils. Data collection should also include mortality, age, and length information for red drum in both inshore and offshore shrimp fisheries.

(2) Assessment of the status and condition of fish stocks significantly impacted by shrimp trawler bycatch, with emphasis given to overfished species under the jurisdiction of the Councils. Other sources of fishing and nonfishing mortality should be considered and quantified as well.

(3) Identification, development, and evaluation of gear, non-gear, and tactical fishing options to reduce bycatch.

(4) Improved methods for communicating with and improving technology and information transfer to the shrimp industry.

(5) Development and evaluation of statistical methods to estimate the bycatch of priority management species in the Gulf and South Atlantic shrimp trawl fisheries.

b. *Pelagic longline fisheries.* Several pelagic longline fisheries exist in the Gulf and South Atlantic, targeting highly migratory species, such as tunas, sharks, and swordfish. Priority areas include:

(1) Development and evaluation of gear and fishing tactics to minimize bycatch of undersized and unwanted species, including sea turtles, marine mammals, billfish, and overfished finfish species/stocks.

(2) Assessment of the biological impact of longline bycatch on related fisheries.

c. *Reef fish fisheries.* The reef fish complex is exploited by a variety of fishing gear and tactics. The following research on bycatch of reef fish species is needed:

(1) Development and evaluation of gear and fishing tactics to minimize the bycatch of undersized and unwanted species, including sea turtles and marine mammals.

(2) Characterization and assessment of the impact of bycatch of undersized target species, including release mortality, during recreational fishing and during commercial longline, bandit gear and trap fishing.

(3) Determination of the release mortality by depth of red snapper caught on commercial bandit rigs that are electrically or hydraulicly powered.

d. *Finfish trawl fisheries.* Studies are needed on quantification and qualification of the bycatch in finfish trawl fisheries, such as the flounder and fly-net fisheries in the South Atlantic.

e. *Gillnet fisheries.* Studies are needed on quantification and qualification of the bycatch in coastal and shelf gillnet fisheries for sciaenids, scombrids, bluefish and other dogfish sharks of the South Atlantic and Gulf of Mexico (particularly interaction with sea turtles and marine mammals).

f. *Economic considerations of bycatch reduction.*

(1) Develop and test models, using actual or hypothesized data, that explicitly consider the economic impacts to the directed fishery and gains to the bycatch fishery. The models should include the effects of the management systems for the directed and bycatch fisheries and should attempt to describe criteria for the correct level of bycatch reduction (e.g., marginal cost and value of reduction are equal).

(2) Develop economic incentives and other innovative alternatives to gear and season/area restrictions as ways to reduce bycatch. The proposal should attempt to contrast the relative costs, potential gains, and levels of bycatch reduction associated with traditional methods and any innovative alternatives addressed by the proposals.

(3) Describe the costs and returns performance of South Atlantic and Gulf of Mexico shrimp fisheries as necessary background for the economics of bycatch reduction. (See Section XIII.A., regarding collection of information.)

2. Reef Fish

Some species within the reef fish complex are exhibiting signs of being overfished, either because of directed efforts or because of being the bycatch of other fisheries. The ecology of reef fish makes them vulnerable to overfishing, because they tend to concentrate over specific types of habitat with patchy distribution. This behavior pattern can make traditional fishery statistics misleading. Priority research areas include:

a. *Collection of Basic Biological Data for Species in Commercially and Recreationally Important Fisheries*

(1) *Age and growth of reef fish.* (a) Description of age and growth patterns, especially for red, vermilion, gray, and cubera snappers; gray triggerfish; gag; black grouper; hogfish; red porgy; and other less dominant forms in the management units for which data are lacking.

(b) Contributions to the development of annual age-length keys and description of age structures for exploited populations for all species in the complex addressed in the Reef Fish and Snapper/Grouper Management Plans for the Gulf and South Atlantic, respectively, prioritized by importance in the total catch.

(c) Design of sampling systems to provide a production-style aging program for the reef fish fishery. Effective dockside sampling programs are needed over a wide geographic range, especially for groupers, to collect information on reproductive state, size, age, and sex.

(2) *Reproduction studies of reef fish.* (a) Maturity schedules, fecundity, and sex ratios of commercially and recreationally important reef fish, especially gray triggerfish, gag, and red porgy in the Gulf and South Atlantic.

(b) Studies of all species to characterize the actual reproductive contribution of females by age.

(c) Identification and characterization of spawning aggregations by species, area, size group and season.

(d) Effects of fishing on changes of sex ratios for gag, red grouper, and scamp, and disruption of aggregations.

(e) Investigations of the reproductive biology of gag, red grouper and other grouper species.

(3) *Recruitment of reef fish.* (a) Source of recruitment in Gulf and South Atlantic waters, especially for snappers, groupers, and amberjacks.

(b) Annual estimation of the absolute or relative recruitment of juvenile gag, gray snapper, and lane snapper to estuarine habitats off the west coast of Florida and to similar estuarine nursery habitats along the South Atlantic Bight; development of an index of juvenile gag recruitment for the South Atlantic based on historical databases and/or field studies.

(c) The contribution of live-bottom habitat and habitat areas of particular concern (Oculina banks) off Fort Pierce, FL and off west central Florida to reef fish recruitment.

(4) *Stock structure of reef fish.* (a) Movement and migration patterns of commercially and recreationally valuable reef fish species, especially gag in the Gulf and South Atlantic and greater amberjack between the South Atlantic and Gulf.

(b) Biochemical/immunological and morphological/meristic techniques to allow field separation of lesser amberjack, almaco jack, and banded rudderfish from greater amberjack to facilitate accurate reporting of catch.

(c) Stock structure of wreckfish in the South Atlantic and of greater amberjack in the Gulf and South Atlantic.

b. *Population assessment of reef fish.* (1) Effect of reproductive mode and sex change (protogynous hermaphroditism) on population size and characteristics, with reference to sizes of fish exploited in the fisheries and the significance to proper management.

(2) Source and quantification of natural and human-induced mortalities, including release mortality estimates for charter boats, headboats, and private recreational vessels, especially for red snapper and the grouper complex.

(3) Determination of the habitat and limiting factors for important reef fish resources in the Gulf and South Atlantic.

(4) Description of habitat and fish populations in the deep reef community and the prey distributions supporting the community.

(5) Development of statistically valid indices of abundance for important reef fish species in the South Atlantic and Gulf, especially red grouper, jewfish, and Nassau grouper.

(6) Assessment of tag performance on reef fish species, primarily snappers and groupers. Characteristics examined should include shedding rate, effects on growth and survival, and ultimately, the effects of these characteristics on estimations of vital population parameters.

(7) Stock assessments to establish the status of major recreational and commercial species. Innovative methods are needed for stock assessments of aggregate species, including the effect of fishing on genetic structure and the incorporation of sex change for protogynous hermaphrodites into stock assessment models.

(8) Assessment of Florida Bay recovery actions on reef fish recruitment and survival.

c. *Management of reef fish.* (1) Research in direct support of management, including catch-and-release mortalities, by gear and depth.

(2) Evaluation of the use of marine reserves as an alternative or supplement to current fishery management practices and measures for reef fish. Studies should focus on the Experimental Oculina Reef Reserve, the Florida Keys National Marine Sanctuary, as well as on the identification of prime sites for the establishment of reserves in the U.S. south Atlantic and Gulf of Mexico.

(3) Characterization and evaluation of biological impacts (e.g., changes in age or size structure of reef fish populations in response to management strategies).

(4) Evaluation of vessel log data for monitoring the fishery and for providing biological, economic, and social information for management; and methods for matching log data to Trip Information Program samples for indices of effort.

(5) For the U.S. Caribbean, collection of socio-demographic and economic cost and returns data sufficient to evaluate management proposals to limit the use of fish and/or lobster traps.

3. Red Snapper Research

The Sustainable Fisheries Act of 1996 required the Secretary of Commerce to conduct a thorough and independent evaluation of the scientific and management basis for conserving and managing the red snapper fishery. NMFS has developed a research plan to improve the management of red snapper to address this requirement. The research priorities below are based on this research plan.

a. *Red Snapper Bycatch.* The bycatch of red snapper can have significant impacts from a fisheries management and ecological standpoint. Research on bycatch of red snapper should focus on the following:

(1) *Shrimp trawl bycatch of red snapper.* Specific guidance and research requirements are contained in the Cooperative Bycatch Plan for the Southeast, available from NMFS (see **ADDRESSES**). Studies are needed to address:

(a) Identification, development, and evaluation of gear, non-gear, and tactical fishing options to reduce bycatch of red snapper.

(b) Development and evaluation of statistical methods to estimate the bycatch mortality of red snapper in the Gulf shrimp trawl fisheries.

(c) Studies of the survival rates of juvenile red snapper that escape shrimp trawls through bycatch reduction devices (BRDs).

(2) *Directed red snapper fisheries.* The reef fish fishery is exploited by a variety of fishing gear and tactics. The following research on regulatory discards is needed to better evaluate the effectiveness of management measures such as minimum size limits and closed seasons:

(a) Development and evaluation of gear and fishing tactics to minimize the bycatch of or increase the survival of discarded red snapper and other reef fish species.

(b) Characterization and assessment of the impact of bycatch of undersized reef fish species, including release mortality, during recreational and commercial fishing. Research on the catch-and-release mortality of red snapper and other reef fish species, by gear (e.g. capture by commercial bandit rigs that are electrically or hydraulicly powered), fishery (e.g. headboat, private boat, charter boat, commercial), and depth. Studies are needed to specifically relate "sink or swim" data, which can be obtained through observer programs, with long-term survival rates.

(c) Research to document predation rates on discarded red snapper and other reef fish species.

(3) *Economic considerations of bycatch reduction*

(a) Develop and test models, using actual or hypothesized data, that explicitly consider the costs and gains of bycatch reduction. The models should include the effects of the management systems for the directed and bycatch fisheries and should attempt to describe criteria for the correct level of bycatch reduction (e.g., marginal cost and value of reduction are equal). Studies should evaluate alternatives to bycatch reduction devices (BRDs).

(b) Develop economic incentives and other innovative alternatives to gear and season/area restrictions as ways to reduce bycatch. The proposal should attempt to contrast the relative costs, potential gains, and levels of bycatch reduction associated with traditional methods and any innovative alternatives addressed by the proposals.

b. *Red snapper biological information.* Collection of basic biological data on red snapper.

(1) Contributions to the development of annual age-length keys and description of the age structure of red snapper populations.

(2) Design of sampling systems to provide a production-style aging program for the red snapper fishery. Effective dockside sampling programs are needed over a wide geographic range to collect information on reproductive state, size, age, and sex.

(3) Reproduction studies of red snapper.

(a) Maturity schedules, fecundity, and sex ratios of red snapper.

(b) Studies to characterize the actual reproductive contribution of females by age.

(4) Identification of sources of recruitment of red snapper in Gulf waters.

c. *Red snapper population assessment.* (1) Determination of the habitat and limiting factors for important red snapper populations in the Gulf.

(2) Estimates of red snapper abundance, age structure and population dynamics on oil platforms and other artificial structures.

d. *Management of red snapper.* (1) Characterization and evaluation of biological impacts (e.g., changes in age or size structure of red snapper

populations in response to management strategies).

(2) Research to evaluate the use of minimum size limits as a management tool in the red snapper fishery.

(3) Texas does not participate in the Marine Recreational Fisheries Statistics Survey (MRFSS); thus, research is needed to collect economics data on Texas anglers. Data requirements include those identified in the MRFSS add-on economic survey developed by NMFS. (See Section XIII.A., regarding collection of information.)

(4) Research to develop bioeconomic models to optimize allocations and benefits derived from the red snapper resource.

4. Coastal Migratory Pelagic Fisheries

The commercial and recreational demand for migratory coastal pelagics has led to overfishing for certain. Additionally, some are transboundary with Mexico and other countries and may ultimately demand international management attention. Current high priorities include:

a. Recruitment indices for king and Spanish mackerel, cobia, dolphin, wahoo, and bluefish, primarily from fishery-independent data sources.

b. Fishery-independent methods of assessing stock abundance of king and Spanish mackerel.

c. Release mortality data for all coastal pelagic species.

d. Improved catch statistics for all species in Mexican waters, with special emphasis on king mackerel, dolphin, and wahoo. This includes length-frequency and life history information.

e. Information on populations of coastal pelagics overwintering off the Gulf of Mexico and the South Atlantic States of North Carolina, South Carolina, Georgia, and Florida, especially concerning population size, age and movement patterns. Calculate the mixing rates for Atlantic/Gulf king mackerel on an annual basis.

f. Development of a practical method for aging dolphin.

g. Basic biostatistics for cobia, dolphin, and wahoo to develop age-length keys and maturation schedules for stock assessments and to evaluate stock structures.

h. Impact of bag limits on total catch and landings of king and Spanish mackerel, dolphin, wahoo, and cobia.

i. Demand and/or supply functions for the commercial king mackerel fisheries, including baseline cost and return data. Cooperative efforts that cover the entire Southeast and employ common methodologies for all geographic areas are strongly encouraged.

j. Sociological and anthropological surveys of coastal pelagic fisheries.

5. Groundfish and Estuarine Fishes

Substantial stocks of groundfish and estuarine species occur in the Gulf and South Atlantic. Most of the database for assessments comes from studies conducted by NMFS and state fishery management agencies. Because of the historic and current size of these fish stocks, their importance as predator and prey species, and their current or potential use as commercial and recreational fisheries, more information on their biology and life history is needed. General research needs are:

a. Red drum. (1) Size and age structure of the offshore adult stock in the Gulf and South Atlantic.

(2) Life history parameters and stock structure for the Gulf and the South Atlantic: Migratory patterns, long-term changes in abundance, growth rates, and age structure. Specific research needs for Atlantic red drum are estimates of fecundity as a function of length and weight and improved coast-wide coverage for age-length keys.

(3) Catch-and-release mortality rates from inshore and nearshore waters.

(4) Estimates of absolute Gulf-wide abundance of red drum.

b. Life history and stock structure for weakfish, menhaden, spot, and croaker in the Gulf and the South Atlantic: Migratory patterns, long-term changes in abundance, growth rates, and age structure and comparisons of the inshore and offshore components of recreational and commercial fisheries.

c. Improved catch-and-effort statistics from recreational and commercial fisheries, including development of age-length keys for size and age structure of the catch, to develop production models. (See Section XIII.A., regarding collection of information.)

d. Abundance and distribution information on spiny dogfish off the coast of North Carolina, and particularly southern North Carolina.

6. Essential Fish Habitat

(a) Determine the effects of fishing gears (e.g., trawls and traps) and practices (e.g., gear retrieval and anchoring) on essential fish habitat (EFH), with emphasis on benthic habitats within the EEZ of the Caribbean, southern U.S. Atlantic, and Gulf of Mexico regions.

(b) Develop scientific data to allow the identification and refinement, as appropriate, of EFH designations for the various life stages of federally managed species.

(c) Develop scientific data to allow the identification and refinement, as appropriate, of Habitat Areas of Particular Concern (HAPC) designation for the various life stages of federally managed species.

(d) Develop GIS mapping protocols and tools to allow the presentation of EFH, HAPC, fishery distribution information, and other relevant data for the southeastern United States, including Puerto Rico and the U.S. Virgin Islands.

7. General

There are many other areas of research that need to be addressed for improved understanding and management of fishery resources. These include methods for data collection, management, analysis, and better conservation. Examples of such research needs include:

a. Identification of fishing communities, characterization of community dependance upon fishery resources and demographics of the families dependent on fishing or fishing related businesses.

b. Development of improved methods and procedures for transferring technology and educating constituency groups concerning fishery management and conservation programs. Of special importance are programs concerned with controlled access and introduction of conservation gear.

c. Design and evaluation of innovative approaches to fishery management with special attention given to those approaches that control access to specific fisheries.

d. Examine the feasibility and efficacy of license buy-back programs.

e. Social, cultural, and /or economic aspects of establishing fishery reserves. Studies should employ accepted data collection methods and should include consumptive users, non-consumptive users, and persons not dependent on use of marine resources. Various management alternatives should be considered in the studies, e.g., exclude all users, exclude all consumptive users, size of reserve, anchoring rules, or any other relevant management tools. (See Section XIII.A., regarding collection of information.)

f. Design and evaluation of limited access options for the red snapper and king mackerel recreational fisheries with specific emphasis on modes of fishing and jurisdictional issues.

g. Estimation of demand models for recreational fishing trips when the target species include a single species, an aggregate of related species, or all species combined. Studies using new data from the Southeast economics add-on to Marine Recreational Fisheries Statistics Survey are highly encouraged.

Priority species include red drum Spanish mackerel, red grouper, wahoo,and dolphin.

h. Sociocultural survey of commercial fishing in the Florida Keys. Proposals should address all fishing enterprises including potential sociocultural effects of large marine reserves in the Tortugas area.

i. Studies to evaluate the value of non-consumptive uses of marine resources, especially as related to diving activities and marine reserves.

XIII. Evaluation Process and Criteria

A. Initial Screening of Applications. Applications are reviewed by NOAA's MARFIN Program Manager to determine whether they are responsive to this solicitation. Applications must: be received by the deadline date (see **DATES**); include OMB form 424 dated and signed by an authorized representative; be submitted by an eligible applicant; address one of the funding priorities; include a budget, statement of work, and milestones; and identify the principal investigator. The applicant will be notified if the application does not conform to these requirements. If the deadline for submission has passed, the application will be returned to the applicant.

B. Evaluation of Proposed Projects.

1. Technical Evaluation. Applications responsive to this solicitation will be evaluated by three or more appropriate private and public sector experts to determine their technical merit. These reviewers provide comments and assign scores to the applications based on the following criteria, with the weights shown in parentheses:

a. Does the proposal have a clearly stated goal(s) with associated objectives that meet the needs outlined in the project narrative? (30 points maximum)

b. Does the proposal clearly identify and describe, in the project outline and statement of work, scientific methodologies and analytical procedures that will adequately address project goals and objectives? (30 points maximum)

c. Do the principal investigators provide a realistic timetable to enable full accomplishment of all aspects of the research? (20 points maximum)

d. Are effective methods proposed that will enable the principal investigators to maintain stewardship of the project performance, finances, cooperative relationships, and reporting requirements? (10 points maximum)

e. Does the budget appropriately allocate and justify costs? (10 points maximum)

5. Are the proposed costs appropriate for the scope of work proposed? (10 points)

2. *Scientific Panel.* Applications together with the technical reviewers' comments and scores are presented to a Scientific Panel composed of NMFS scientific experts. This panel provides comments and rates each proposal as either "Recommended for Funding" or "Not Recommended for Funding" based on qualitative assessments which include a technical evaluation of the merits of the science.

3. *MARFIN Panel.* Proposals that are "Recommended for Funding" by the Scientific Panel are presented to a panel of non-NOAA fishery experts known as the MARFIN Panel. Each member of the MARFIN Panel individually considers the significance of the needs addressed in each proposal, how the project affects industry, and how the project addresses issues that are of highest importance in regional fisheries management. The individuals on the MARFIN Panel provide comments and rate each of these proposals as either "Recommended for Funding" or "Not Recommended for Funding."

4. *Regional Administrator.* The proposals reviewed by the MARFIN Panel are ranked by the Program Manager in the order of preferred funding, based on the number of MARFIN Panel members recommending the proposal for funding, then provided to the Regional Administrator, who is the selecting official. The Regional Administrator also receives the MARFIN Panel members' individual comments, and comments from the Scientific Panel for projects rated as "Recommended for Funding."

The Regional Administrator, in consultation with the Assistant Administrator for Fisheries, determines the projects to be funded. The Regional Administrator will justify in writing any selection he makes that falls outside the MARFIN Panel's order of preferred funding.

The exact amount of funds awarded, the final scope of activities, the project duration, and specific NMFS cooperative involvement with the activities of each project are determined in pre-award negotiations between the applicant, the NOAA Grants Office and the NMFS Program Office. Projects must not be initiated by recipients until a signed award is received from the NOAA Grants Office. Successful applications generally are recommended within 210 days from the date of publication of this notice. The earliest start date of awards average 90 days after each project is selected and after all NMFS/applicant negotiations of cooperative activities have been completed. The earliest start date of awards is about 300 days after the date of publication of this notice. Applicants should consider this selection and processing time in developing requested start dates for their applications.

C. NMFS can, at its discretion:

1. *Consult with members of the fishing industry, management agencies, environmental organizations, and academic institutions.* NMFS may, at its discretion, request comments from members of the fishing and associated industries, groups, organizations, and institutions who have knowledge in the subject matter of a project or who would be affected by a project.

2. *Consult with Government agencies.* Applications may be reviewed by the NMFS Southeast Region Program Office in consultation with the NMFS Southeast Fisheries Science Center, including appropriate operations and laboratory personnel, the NOAA Grants Office and, as appropriate, DOC bureaus and other Federal agencies.

XIII. Other Requirements

A. *Federal policies and procedures.* Recipients and subrecipients are subject to all Federal laws and Federal and DOC policies, regulations, and procedures applicable to Federal financial assistance awards. Women and minority individuals and groups are encouraged to submit applications under this program. If a grant is made that specifically requires the collection of information from the public, the grantee will be responsible for preparing the documentation necessary to obtain Paperwork Reduction Act (PRA) approval prior to the start of the collection. This approval process takes a minimum of 4 months. This provision especially applies to priorities 1(f)(3), 3(d)(3), 5(c), and 7(e). Information on the PRA process can be found at the following Web site address: www.rdc.noaa.gov/pra.

B. *Past performance.* Any first-time applicant for Federal grant funds is subject to a pre-award accounting survey prior to execution of the award. Unsatisfactory performance under prior Federal awards may result in an application not being considered for funding.

C. *Pre-award activities.* If applicants incur any costs prior to an award being made, they do so solely at their own risk of not being reimbursed by the Government. Notwithstanding any verbal or written assurance that they may have received, there is no obligation on the part of DOC to cover pre-award costs.

D. *No obligation of future funding.* If an application is selected for funding, DOC has no obligation to provide any additional future funding in connection with the award. Renewal of an award to increase funding or extend the period of performance is at the total discretion of DOC.

E. *Delinquent Federal debts.* No award of Federal funds shall be made to an applicant or to its subrecipients who have any outstanding delinquent Federal debt or fine until either:

1. The delinquent account is paid in full;

2. A negotiated repayment schedule is established and at least one payment is received; or

3. Other arrangements satisfactory to DOC are made.

F. *Name check review.* All non-profit and for-profit applicants are subject to a name check review process. Name checks are intended to reveal if any key individuals associated with the applicant have been convicted of, or are presently facing, criminal charges such as fraud, theft, perjury, or other matters that significantly reflect on the applicant's management honesty or financial integrity. Potential non-profit and for-profit recipients may also be subject to reviews of Dun and Bradstreet data or other similar credit checks.

G. *Primary applicant certifications.* All primary applicants must submit a completed Form CD-511, "Certifications Regarding Debarment, Suspension and Other Responsibility Matters; Drug-Free Workplace Requirements and Lobbying," and the following explanations are hereby provided:

1. *Nonprocurement debarment and suspension.* Prospective participants (as defined at 15 CFR 26.105) are subject to 15 CFR part 26, "Nonprocurement Debarment and Suspension" and the related section of the certification form prescribed above applies;

2. *Drug-free workplace.* Grantees (as defined at 15 CFR 26.605) are subject to 15 CFR part 26, subpart F, "Government-wide Requirements for Drug-Free Workplace (Grants)" and the related section of the certification form prescribed above applies;

3. *Anti-lobbying.* Persons (as defined at 15 CFR 28.105) are subject to the lobbying provisions of 31 U.S.C. 1352, "Limitation on use of appropriated funds to influence certain Federal contracting and financial transactions," and the lobbying section of the certification form prescribed above applies to applications/bids for grants, cooperative agreements, and contracts for more than $100,000; and

4. *Anti-lobbying disclosures.* Any applicant who has paid or will pay for lobbying using any funds must submit a Form SL-LLL, "Disclosure of Lobbying Activities," as required under 15 CFR part 28, appendix B.

H. *Lower tier certifications.* Recipients shall require applicants/bidders for subgrants, contracts, subcontracts, or other lower tier covered transactions at any tier under the award to submit, if applicable, a completed Form CD-512, "Certifications Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion-Lower Tier Covered Transactions and Lobbying" and disclosure form SF-LLL, "Disclosure of Lobbying Activities." Form CD-512 is intended for the use of recipients and should not be transmitted to DOC. A form SF-LLL submitted by any tier recipient or subrecipient should be submitted to DOC in accordance with the instructions contained in the award document.

I. *False statements.* A false statement on the application is grounds for denial or termination of funds and grounds for possible punishment by a fine or imprisonment as provided in 18 U.S.C. 1001.

J. *Intergovernmental review.* Applications under this program are subject to the provisions of Executive Order 12372, "Intergovernmental Review of Federal Programs."

K. *Requirement to buy American-made equipment and products.* Applicants are hereby notified that they are encouraged, to the extent feasible, to purchase American-made equipment and products with funding provided under this program.

Classification

Prior notice and an opportunity for public comments are not required by the Administrative Procedure Act or any other law for this notice concerning grants, benefits, and contracts. Therefore, a regulatory flexibility analysis is not required for purposes of the Regulatory Flexibility Act.

This action has been determined to be not significant for purposes of Executive Order 12866.

Cooperative agreements awarded pursuant to pertinent statutes shall be in accordance with the Fisheries Research Plan (comprehensive program of fisheries research) in effect on the date of the award.

Federal participation under the MARFIN Program may include the assignment of DOC scientific personnel and equipment.

Reasonable, negotiated financial compensation will be provided under awards for the work of eligible grantee workers.

Notwithstanding any other provision of law, no person is required to respond to, nor shall any person be subject to a penalty for failure to comply with, a collection of information subject to the requirements of the Paperwork Reduction Act unless that collection of information displays a currently valid OMB control number. This notice contains collection-of-information requirements subject to the Paperwork Reduction Act which have been approved under OMB control number 0648-0175. Public reporting burden for agency-specific collection-of-information elements, exclusive of requirements specified under applicable OMB circulars, is estimated to average 4 hours per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. This includes a requirement to submit up to 10 copies of applications. Send comments regarding this reporting burden estimate or any other aspect of this collection of information, including suggestions for reducing the burden, to NMFS (see **ADDRESSES**).

Authority: 15 U.S.C. 713c-3(d).

Dated: February 15, 2001.

William T. Hogarth,

Acting Assistant Administrator for Fisheries, National Marine Fisheries Service.

[FR Doc. 01–4417 Filed 2–21–01; 8:45 am]

BILLING CODE 3510–22–S

Appendix 5

MARFIN
Project
Summaries

NA17FF2009

MARFIN PROJECT SUMMARY

Project Title: Enhancing Industry Contribution Towards Documentation of Fishing Effort and Bycatch Reduction in the Shrimp Fishery of the Southeastern United States

Project Status/Duration: New__X__ Con't_____ Project Period: __12 Months__

Name, Address, and Telephone Number of Applicant:

Gulf & South Atlantic Fisheries Foundation, Inc.
Lincoln Center, Suite 997
5401 West Kennedy Blvd
Tampa, FL 33609
Phone: (813) 286-8390 FAX: (813) 286-8261

Principal Investigator(s) and Brief Statement of Qualifications:
Ms. Judy L. Jamison - Over 21 years administrative and grants management experience
Dr. Tomas Vergel C. Jamir - Over 17 years fisheries/oceanographic research and project management experience

Project Objectives:
(a) Solicit and pre-screen as many industry, NMFS, State or internationally developed BRDs that show potential for use in the Gulf of Mexico and South Atlantic shrimp fishery;
(b) Conduct operational tests on approximately ten (10) promising BRDs following the official NMFS (Gulf of Mexico and South Atlantic Fishery Management Council) BRD Certification Testing Protocol;
(c) Collect field data on BRD certification tests using Foundation contracted (NMFS certified) fishery observers;
(d) Analyze and disseminate the results of tests to the commercial fishery industry, federal and state fishery management agencies, and Sea Grant/Marine Extension Srvice;
(e) Collect shrimp fishing effort, catch and corresponding rates of red snapper bycatch among commercial shrimp trawlers in the Gulf of Mexico; and
(f) Determine the red snapper bycatch and estimated fishing mortality (F) reduction potential of various experimental BRDs.

Specific Priority(ies) in Solicitation to Which Project Responds:
1. **Bycatch** (a) Shrimp trawl fisheries (1) Data collection and analyses to expand and update current bycatch estimates. (3) Identification, development and evaluation of gear fishing options to reduce bycatch.
2. **Red Snapper Research** (a) Red Snapper Bycatch (1) Shrimp trawl bycatch of red snapper.

Summary of Works (For continuing projects, include progress to date)
The project will field test ten (10) promising industry bycatch reduction devices (BRDs) for certification following NMFS BRD Certification Testing Protocol for the South Atlantic and Gulf of Mexico. Included in the work plan are solicitation and review (with the Gear Review Panel) of industry ideas and prototype BRD designs for subsequent: (a) underwater hydrodynamic performance tests with NMFS-Pascagoula, (b) prototype BRD gear construction and tuning, and (c) actual field certification testing aboard commercial shrimp trawls fishing within the U.S. Federal waters (i.e., Exclusive Economic Zone).

Data collection will be handled by Foundation contracted Fishery Observers, including data editing and entry by a contracted Data Manager into the NMFS-Galveston Bycatch Database. The Foundation's Program Director (Gear Technologist) will conduct the necessary statistical analysis for BRDs that met the "good tow" requirements, report write-up and presentation of results. Overall program administration will be handled by the Foundation's Executive Director. Bycatch reduction estimates will follow the procedures outlined in the protocol (modified paired t-test) including future revisions (e.g., proposed ratio analysis).

	Year 1	Year 2	Year 3	Total
Project Funding:				
Federal	$553,095			$553,095
Non-Federal				
Total	$553,095			$553,095

NA17FF2014

MARFIN PROJECT SUMMARY

Project Title: Genetic Impacts of Shrimp Trawling on Gulf Red Snapper

Project Status/Duration: New: __X__ Con't: ____ Period: 12 Months

Name, Address, and Telephone Number of Applicant:
Texas A&M Research Foundation
P.O. Box 3578
College Station, Texas 77843
Phone: (409) 845-8629

Principal Investigator(s) and Brief Statement of Qualifications:
Dr. John Gold (voice: 979-847-8778; e-mail: goldfish@tamu.edu) - >*25* years experience in fish molecular genetics with emphasis on population structure and use of molecular genetics in attaining management goals; experience on a variety of species, including red drum, spotted seatrout, king mackerel, greater amberjack, red grouper, bluefin tuna, and red snapper.

Project Objectives: Primary objectives are as follows: (i) provide scientific information critical to management of red snapper resources in the Gulf of Mexico; (ii) assess potential genetic impacts on red snapper that stem from accidental mortality caused by shrimp trawling and which may reduce effective size of red snapper subpopulations thereby negatively impacting recruitment and long-term adaptive resilience; and (iii) determine whether red snapper assemblages from five subregions (localities) across the northern Gulf are increasing or decreasing in genetic effective population size. In addition to providing a fishery - independent estimate of abundance of breeding adults, the last also provides a novel, genetics-based measure of stock or subpopulation structure.

Specific Priority(ies) in Solicitation to Which Project Responds:
Priority 1 - Bycatch: a.(2) status of fish stocks significantly impacted by shrimp trawler bycatch;
Priority 2 - Reef Fish: a.(3) recruitment of reef fish a.(4) stock structure of reef fish
Priority 3 - Red snapper: a.(1) shrimp trawl bycatch a.(2) directed red snapper fisheries

Summary of Work to be performed: (For continuing projects, include progress to date)
Work to be performed will include the following: (i) assay of allelic variation at 20 nuclear-encoded microsatellites from samples (75-100 age 0 fish) taken during shrimp trawling and representing five subregions (localities) in the northern Gulf, (ii) determination of whether juveniles taken as bycatch represent random samples of genotypes within each subregional assemblage - multiple tests, including regression analysis of unbiased coefficients of genetic relatedness, will be employed to assess whether shrimp trawling could negatively impact red snapper genetic effective size; and (iii) determination of whether red-snapper assemblages in the five subregional localities are increasing or decreasing in effective population size. The last will involve tests of the mutation-genetic drift equilibrium and will provide a genetics-based assessment of status and condition of subregional assemblages of red snapper in the northern Gulf. It also will address in a novel way the issue of subpopulation or stock structure of red snapper in the Gulf of Mexico.

	Year 1	Year 2	Year 3	Total
Project Funding:				
Federal	$ 68,825			$ 68,825
Non-Federal	$ 13,312			$ 13,312
Total	$ 82,137			$ 82,137

NA17FF2031

MARFIN Project Summary

Project Title: Behavior and Swimming Performance of Red Snapper, Lutjanus campechanus: Its Application to Bycatch Reduction

Project Status/Duration: New: __X__ Con't: _____ Period: 36 Months

Name, Address, and Telephone Number of Applicant:
Glenn R. Parsons
Department of Biology
The University of Mississippi
Box 1848
University, MS 38677-1848
Phone: (662) 915-7479

Principal Investigator(s) and Brief Statement of Qualifications:
Dr. Glenn R. Parsons, Professor of Biology, 20 years experience in fish biology, Gulf of Mexico fishes, extensive research in fish swimming, published many papers on fish behavior and performance.

Project Objective: To assess the swimming ability and behavior of red snapper and apply this information to shrimp trawl bycatch reduction.

Specific Priority(ies) in Solicitation to Shich Project Responds:
1. Bycatch: Identification, development and evaluation of gear, non-gear and tactical fishing options to reduce bycatch.

Summary of Work: (For continuing projects, include progress to date)
In this proposal, we will investigate behavior and swimming in juvenile red snapper. Specifically, we will consider the effects of size, season, and time of day on red snapper behavior and swimming. In addition, we will evaluate a vortex generating BRD to assess its ability to reduce capture of juvenile snapper during shrimp trawl operations. This information may provide information essential to reducing red snapper bycatch and mortality.

	Year 1	Year 2	Year 3	Total
Project Funding:				
Federal	$ 70,447	$ 70,650	$ 71,900	$212,997
Non-Federal	$ 57,960	$ 59,468	$ 59,653	$177,081
Total	$128,407	$130,118	$ 131,553	$390,078

NA87FF0421

MARFIN PROJECT SUMMARY

Project Title: Evaluation of Multiple Factors Involved in Release Mortality of Undersized Red Grouper, Gag, Red Snapper and Vermilion Snapper.

Project Status/Duration: New _____ Cont X Project Period: 24 Months

Name, Address, and Telephone Number of Applicant:
Mote Marine Laboratory
1600 Thompson Parkway
Sarasota, FL 34236
Phone: (813) 388-4441; FAX (941) 388-4312

Principal Investigator(s) and Brief Statement of Qualifications:
Karen Burns (MML), Randy Edwards, Ph.D. (MML), Felicia C. Coleman, Ph.D. (FSU) and Christopher C. Koenig, Ph.D. (FSU)

Project Objective:

1. Test hypothesis that vermilion snapper do not survive release.
2. Test hypothesis that hook release mortality is far greater than depth induced mortality for red snapper.
3. Obtain catch and release mortality rates by depth and gear for red grouper, gag, red snapper and vermilion Snapper.
4. Determine tag shedding rates and effects on growth and survival fish tagged with single barbed dart tags on 4 target species.
5. Obtain movement/migration patterns for 4 target species in the Gulf of Mexico and South Atlantic.

Specific Priority(ies) in Solicitation to which Project Responds:

1 .c(2). Characterization and assessment of the impact of bycatch of undersized target species, including release mortality, during recreational fishing and during commercial longline, bandit gear and trap fishing.

2.a(4). Stock structure of reef fish.
(a) Movement and migration patterns of commercially and recreationally valuable reef fish species.

2.b(2). Source and quantification of natural and human-induced mortalities, including release mortality estimates for charter boats, headboats, and private recreational vessels, especially for red snapper and the grouper complex.

2.b(6). Assessment of tag performance on reef fish species, primarily snappers and groupers. Characteristics examined should include shedding rate, effects on growth and survival, and ultimately, the effects of these characteristics on estimations of vital populations parameters.

2.c. Management of reef fish.
(1) Research indirect support of management, including catch-and-release mortalities, by gear and depth.

Summary of Work: (For continuing projects, include progress to date)
To evaluate the survivorship of red grouper, *(Epinephelus morio,* red snapper, *Lutjanus campechanus,* Gag, *Mycteroperca microlepis,* and vermilion snapper, *Rhomboploites aurorubins,* with regard to depth induced and hook release mortality. This will be accomplished by:

1. Tag returns;
2. Tag shedding rates;
3. Necropsy of dead fish to determine the cause of death; and
4. Cage studies to determine sub-lethal effects of death.

	Year 1	Year 2	Year 3	Total
Project Funding:				
Federal	$161,913	$165,870		$327,783
Non-Federal	$28,656	$29,473		$58,126
Total	$190,569	$195,343		$385,912

NA17FF2010

MARFIN PROJECT SUMMARY

Project Title: Evaluation of the Efficacy of Current Minimum Size Regulations for Selected Reef Fish Based on Release Mortality and Fish Physiology

Project Status/Duration: New: X Con't: _____ Period: 24 Months

Name, Address, and Telephone Number of Applicant:
Karen M. Burns
Program Manager, Fisheries Biology Program
Mote Marine Laboratory
1600 Ken Thompson Parkway
Sarasota, FL 34236
Phone: (941) 388-4441 FAX: (941) 388-4441
e-mail: Kburns@mote.org

Principal Investigator(s) and Brief Statement of Qualifications:
Karen M. Burns is the Principal Investigator of 8 (eight) successfully completed and 1 (one) recently awarded MARFIN project: as well as the Principal Investigator of MML's Reef Fish and Coastal Pelagic Tagging Program. She supervised a Master's thesis on red snapper survival in 1997.
Robin Overstreet has worked before with Karen Burns, on a MARFIN Cobia Stock Assessment Study in the Gulf of Mexico and in the South Atlantic, Award No. NA57FF0294. He directs the "Parasitology Department" at USM's College of Marine Sciences, which includes three graduate students, several technicians, and others. His program deals with red snapper and is part of a cooperative program with MML (NA006FL0501), as well as a USDA funded U.S. Marine Shrimp Farming Program (98-38808-6019).

Project Objectives

- To test the hypothesis that red grouper are more susceptible to depth-induced mortality than red snapper based not only on swimbladder size and thickness, but also on the amount of bundles of rete mirabile and gas gland cells in the swimbladder.
- To test the hypothesis that smaller red grouper (<12 in. [30.5 cm]) survive rapid decompression better than larger (>1 5 in. [38 cm]) red grouper because of changes in swimbladder structures with size (between 12 - 15 in. [30.5 - 38 cm]).
- To obtain catch and release mortality rates relative to depth and gear for red grouper, gag, red snapper, vermilion snapper and mangrove snapper.
- To obtain movement and migration patterns for red grouper, gag, red snapper, and mangrove snapper in the Gulf of Mexico and South Atlantic.

Specific Priority(ies) in Solicitation to Which Project Responds:

1. Bycatch
   c. Reef Fish fisheries
2. Reef Fish
   b. Population assessment of Reef Fish
      (2) Source and quantification of natural and human-induced mortalities. Including release mortality estimates, etc.
      (6) Assessment of tag performance on Reef Fish species, primarily snappers and groupers, etc.
3. Red Snapper Research
   a. Red snapper bycatch.
   b. Red snapper population
      (2) Estimates of red snapper abundance, age structure and population dynamics. etc. artificial structures.

Summary of Work: (For continuing projects, include progress to date)

1. Collect red snapper and red grouper swimbladders over available size range especially 12 in. (30.5cm) - 15 in. (38cm) for histological analyses of the development of secretory structure.
2. Tag red grouper and red snapper especially 12 in. (30.5cm) - 15 in. (38cm) to evaluate survival from depth with development of swimbladder secretory structures.
3. Tag red grouper, red snapper, gag, mangrove, and vermilion snapper to obtain release mortality by depth and to obtain growth. movement and migration data.
4. Double tag target species for tag shedding rates.
5. Evaluate circle hook captured red snapper survival by depth.

	Year 1	Year 2	Year 3	Total
Project Funding:				
Federal	$167,481	$192,323		$359,804
Non-Federal	$ 66,211	$ 67,641		$133,852
Total	$233,692	$259,964		$493,656

NA17FF2012

MARFIN PROJECT SUMMARY

Project Title: Estimating Discard Rate and Release Mortality of Red Snapper in Texas Fisheries

Project Status/Duration: New: __X__ Con't: _____ Period: 36 Months

Name, Address, and Telephone Number of Applicant:
Sandra Diamond
Department of Biology
Texas Tech University
Lubbock, TX 79409
Phone: (806) 742-1999
e-mail: Sandra.Diamond@ttu.edu

Principal Investigator(s) and Brief Statement of Qualifications:
Dr. Sandra Diamond has conducted research on bycatch issues, primarily in shrimp trawl and gill net fisheries, for over 15 years. In the mid-1980s, she ran the onboard observer program and participated as an observer in the pelagic drift net fishery in California. She is currently a member of the RFSAP and the SSC for the Gulf Council.
Dr. Quenton Dokken, co-PI, has over 20 years experience in the study and research of marine fish ecology and fisheries in Texas. Currently his work is focused on the ecosystem dynamics of natural and artificial reefs in the northwestern Gulf of Mexico and the socioeconomics of Texas fisheries. He has been the lead in working with offshore oil/gas producers to allow scientists to conduct marine research on platforms.

Project Objective: 1) To estimate delayed release mortality of red snapper under controlled conditions. 2) To find physiological indicators, of delayed release mortality using blood samples from caught fish. 3) To estimate discard rate and delayed release mortality in commercial and recreational fisheries using the indicators from the controlled study. 4) To tag released fish to estimate recapture rate by the fisheries. 5) To relate discard rate to year class strength using SEAMAP data.

Specific Priority(ies) in Solicitation to Which Project Responds:
I. a.(2), I. c.(2), I. c. (3), 2. b. (2), 2. c. (I), 3. a. (2) (b), and 3. d. (2) relate to estimating discard rate and discard mortality of red snapper relating observer estimates of release mortality to long-term survival, and evaluating the use of size limits as a management tool for red snapper.

Summary of Work: (For continuing projects, include progress to date)
Red snapper, the most economically important reef fish in the Gulf of Mexico, has been classified as overfished since 1984. Since then managers have regulated the directed fisheries using size and bag limits, closed seasons, and trip and seasonal quotas. The use of these measures assumes that either fishermen can avoid catching illegal fish or that catch-and-release does not contribute significantly to fishing mortality, but these assumptions may not be valid. We propose to conduct a study of release mortality under controlled field conditions to estimate the delayed release mortality with different capture depths and water temperatures using red snapper caught with hook and line and suspended from oil platforms, and to investigate the use of physiological indicators of stress (plasma cortisol, lactate, and osmolality) to estimate delayed release mortality. We will also spend two years riding aboard commercial and recreational fishing boats to obtain better estimates of discard rates, to use the physiological indicators to estimate delayed release

mortality in the field, and to conduct a tagging study to look at recapture rates over the season and between years. We will also look for a predictor of discard rate by relating discard rate in the fisheries to year class strength. If we can relate physiological measurements taken soon after capture to immediate and delayed release mortality, then we will be able to obtain much better estimates of release mortality to use in the stock assessment. Even if physiological indicators cannot be correlated with delayed release mortality, this study will provide data on discard rates and release mortality from the fisheries that can be used by the Gulf Council and NMFS to improve the red snapper stock assessment and help design management strategies to more effectively rebuild the overfished red snapper stock. If successful, these indicators may also be useful for other reef fish, such as red grouper.

	Year 1	Year 2	Year 3	Total
Project Funding:				
Federal	$151,412	$ 99,027	$103,805	$354,244
Non-Federal				
Total	$151,412	$ 99,027	$103,805	$354,244

NA97FF0350

MARFIN PROJECT SUMMARY

Project Title: Ecological Factors Limiting Density and Regulating Growth and Condition for Gag Grouper: A Definitive Test for the Role of Shelter.

Project Status/Duration: New _X_ Cont ____ Project Period: 24 Months

Name, Address, and Telephone Number of Applicant:
University of Florida
IFAS, G040 McCarty Hall
P.O.Box 110110
Gainesville, FL 32611
Phone: (352) 392-2356

Principal Investigator(s) and Brief Statement of Qualifications:
William J. Lindberg, Ph.D. and 19 years of fisheries related research
Thomas K. Frazer, Ph.D. and 10 years of fisheries related research
Kenneth M. Portier, Ph.D. and 18 years of statistical consulting

Project Objective: The goal for this project is to determine if reef habitat, specifically available shelter, limits local densities of gag grouper, *Mycteroperca microlepis*, and thereby regulates the growth and condition of gag on the shallow continental shelf, i.e., that gag growth and condition are density-dependent as a consequence of shelter limitation.

Specific Priority(ies) in Solicitation to which Project Responds:
Reef Fish: (A.1.a.) Age and Growth, (A.4.a.) Movement, and (B.3.) Habitat and Limiting Factors

Summary of Work: (For continuing projects, include progress to date)
The FY 1999 MARFIN announcement *(Federal Register* Vol.63, No.208, *p.57660)* emphasizes that "The ecology of reef fish makes them vulnerable to overfishing, because they tend to concentrate over specific types of habitat with patchy distribution. This behavior pattern can make traditional fishery statistics misleading." Therefore, scientific knowledge of how reef fish use patchy habitat and the effects on demographic parameters is essential for modeling their population and community dynamics, and for effectively planning and evaluating proposed actions to rebuild or maintain reef fishery stocks (e.g., changes in size limits or marine reserves). This project will experimentally test whether or not the growth and condition of gag, *Mycteroperca microlepis*, is density-dependent as a consequence of shelter limitation on gag densities through the process of density-dependent habitat selection. Such work is essential for spatially explicit population models to serve the effective management of reef fishes such as gag grouper.

Reef shelter will be manipulated in a field experiment of 2 years duration. Intensive non-destructive sampling of experimental reefs will provide time-series data for predicted changes in fish densities and relative weight, while periodic sub-sampling will provide specimens for growth estimates from otolith analyses. This approach is possible only because replicate experimental reefs already exist, with a foundation of data already established.

	Year 1	Year 2	Year 3	Total
Project Funding:				
Federal	$90,000	$85,158		$175,158
Non-Federal	$76,523	$78,670		$155,193
Total	$166,523	$163,828		$330,351

NA97FF0347

MARFIN PROJECT SUMMARY

Project Title: Aspects of the Life History and Population Characteristics of the Red Grouper, *Epinephelus morio*, along the Southeastern United States

Project Status/Duration: New X Cont _____ Project Period: 24 Months

Name, Address and Telephone Number of Applicant:
John C. McGovern
Marine Resources Research Institute
P.O. Box 12559
Charleston, SC 29422-2559
Phone: (843) 762-5414; FAX (843) 762-5110; e-mail mcgovernj@mrd.dnr.state.sc.us

Principal Investigators and Brief Statement of Qualifications:
John C. McGovern, Ph.D.; Associate Marine Scientist, SCDNR; experience with fish research and project management
George R. Sedberry, Ph.D.; Associate Marine Scientist, SCDNR; international fisheries research and project management
Patrick J. Harris, Ph.D.; Assistant Marine Scientist, SCDNR; experience with life history studies.VPA to estimate population size

Project Objective: 1) Examine otoliths from red grouper to generate age-length keys; 2) to determine sex ratio, size and age of maturity and maturity schedules; 3) to estimate population size via Virtual Population Analyses; and 4) to provide these data in a timely fashion to the NMFS and South Atlantic Fishery Management Council.

Specific Priority(ies) in Solicitation to which Project Responds:
Reef fish. (A) Collection of basic biological data; (1) Age and growth of reef fish; (2) Reproduction of reef fish; (a) Maturity schedules, fecundity, sex ratio; (e) reproductive biology of red grouper.

Summary of Work: The red grouper, *Epinephelus morio,* is a protogynous serranid that is associated with reef habitat throughout the Gulf of Mexico and along the south Atlantic coast to New England. Red grouper landings off eastern FL declined during the 1990's while North Carolina landings increased dramatically. During 1986-1995, 45% of the red grouper landings from the southeastern United States occurred in eastern Florida and 53% were landed in North Carolina. Virtually no red grouper were landed in Georgia and South Carolina. This disjunct distribution suggests that there may be differences in aspects of the life history of red grouper off North Carolina and Florida and that different management regulations may be required for the two regions. Despite the commercial importance of this species very few life history studies have been conducted for red grouper taken from the southeast Atlantic states. As a result, management regulations are based on life history data from red grouper in the Gulf of Mexico. The only study of red grouper age and growth along the southeastern United States examined data that were collected during the 1970's and 1980's from North Carolina to eastern Florida and did not consider the disjunct distribution of red grouper. There have been no published accounts of the reproductive status of this species off the southeastern coast. We propose to compare aspects of age, growth, reproduction and fecundity of red grouper from fish caught off eastern Florida to that of fish caught off North Carolina. We also intend to estimate population size for the two areas via Virtual Population Analysis.

	Year 1	Year 2	Year 3	Total
Project Funding:				
Federal	$60,000	$42,879		$102,879
Non-Federal	$5,952	$5,952		$11,904
Total	$65,951	$48,832		$114,783

NA97FF0346

MARFIN PROJECT SUMMARY

Project Title: Nursery Habits of Red Snapper (Lutjanus Campechanus) in the North West Gulf Mexico

Project Status/Duration: New X Cont _____ Project Period: 12 Months

Name, Address, and Telephone Number of Applicant:
Texas A&M Research Foundation
TAMUS 3578
College Station, TX 77843

Principal Investigator(s) and Brief Statement of Qualifications:
Dr. Andre M. Landry, Jr., Professor of Marine Biology and Wildlife and Fisheries Sciences at Texas A&M University; Expertise and Research Interests: Life history of estuarine and marine fishes, reef fish community dynamics, ichthyology.
Dr. Jay R. Rooker, Assistant Professor of Marine Biology at Texas A&M University; Expertise and Research Interests: Fisheries ecology, postrecruitment processes, fish demography, ecology of reef fishes.

Project Objective:
The proposed research will identify and characterize nursery inner shelf areas in the northwest Gulf of Mexico. Several complementary approaches will be used to determine spatial and temporal utilization of shell-ridge and associated habitats by juvenile red snapper in the northwest Gulf of Mexico. The "quality" of different habitats occupied by juvenile red snapper also will be evaluated and related to spatial and temporal patterns of habitat use. Further, we will investigate the role of emigration activity by Age-1 snapper on the recruitment of newly settled red snapper to nursery grounds.

Specific Priority(ies) in Solicitation to which Project Responds:
The proposed research responds to the need to develop innovative approaches to assess the status and condition of fish stocks significantly impacted by shrimp trawler bycatch (MARFIN Funding Priorities). In addition, this research is directly relevant to the recommendations outlined in the Magnuson-Stevens Fishery and Conservation Act (Sustainable Fisheries Act 1966) regarding the identification and description of Essential Fish Habitat (EFH) for species under Federal fishery management.

Summary of Work: (For continuing projects, include progress to date)
The proposed research will identify and characterize nursery habitats of red snapper on inner shelf areas in the northwest Gulf of Mexico. Several complementary approaches will be used to characterize environmental and habitat variables at sites where juvenile red snapper aggregate. The "quality" (based on growth potential) of different habitats occupied by juvenile red snapper will be evaluated and related to spatial and temporal patterns of habitat use. Further, we hypothesize that recruitment to certain nursery areas (i.e., shell-ridge zones) by recently settled red snapper is a function of emigration activity by Age-1 snapper (i.e., movement away from shell-ridge habitats to more complex structure). This hypothesis will be tested by examining the interplay of immigration and emigration activity of Age-O and Age-1 snapper, respectively.

	Year 1	Year 2	Year 3	Total
Project Funding:				
Federal	$100,000			$100,000
Non-Federal	$36,690			$36,690
Total	$136,690			$136,690

NA17FF2007

MARFIN PROJECT SUMMARY

Project Title: Red Snapper *Lutjanus campechanus in* the Northern Gulf of Mexico: Age and Size Composition of the Commercial Harvest and Mortality of Regulatory Discards

Project Status/Duration: New __X__ Con't ____ **Project Perod:** __36 Months__

Name, Address, and Telephone Number of Applicant:
Office of Sponsored Programs
330 Thomas Boyd Hall
Louisiana State University
Baton Rouge, LA 70803-2701
Voice: (225) 578-3386

Principal Investigator(s) and Brief Statement of Qualifications:
Dr. Charles A. Wilson and Mr. David L. Nieland, 21 years and 15 years experience, respectively, in age, growth, and reproductive biology of marine fishes in the northern Gulf of Mexico.

Project Objectives: For the red snapper commercial harvests in the northern GOM during 2001-2004: 1) determine the distribution of ages and lengths within these catches, 2) compare age and length distributions among harvest years and to previous studies, and 3) investigate both the catch-and release mortality and the age composition of regulatory discards.

Specific Priority(ies) in Solicitation to Which Project Responds: 2. a. (1) (a)-age and growth of RS; 2. a. (1) (b)-annual age-length keys for RS; 2. a. (1) (c)-production ageing of RS; 2. c. (3)-evaluation of impacts of management strategies; 3. a. (2) (b)-release mortality of RS in the commercial fishery; 3. b. (1)-annual age-length keys for RS; 3. b. (2)-production ageing of RS; 3. d. (1)-evaluation of impacts of management strategies.

Summary of Work: (For continuing projects, include progress to date)
Lengths and ages of red snapper randomly selected from the commercial fishery in the northern Gulf of Mexico will be used to describe the size and age composition of the harvest. Observers placed on commercial vessels will qualitatively assess release mortality of red snapper regulatory discards in the commercial fishery and collect undersized specimens for an examination of the age structure of same. All data will be furnished to the National Marine Fisheries Service for their use in periodic stock assessment efforts.

	Year 1	Year 2	Year 3	Total
Project Funding:				
Federal	$ 88,050	$101,583	$108,383	$298,016
Non-Federal	$ 32,487	$ 34,769	$ 36,630	$103,886
Total	$120,537	$136,352	$145,013	$401,902

NA87FF0423

MARFIN PROJECT SUMMARY

Project Title: Genetic Stock Identification of Scamp, *MYCTEROPERCA PHENAX*, Black Grouper, *MYCTEROPERCA BONACI*, and Red Grouper, *EPINEPHELUS MORIO* in the western Atlantic.

Project Status/Duration: New ___ Cont _X_ Project Period: 36 Months

Name, Address, and Telephone Number of Applicant:

Robert W. Chapman
Marine Resources Research Institute
P.O. Box 12559
Charleston, SC 29422-2559
Phone: (843) 762-5402; FAX (843) 762-5110

Principal Investigators and Brief Statement of Qualifications:
Robert W. Chapman, Ph.D.; Associate Marine Scientist, MRRI; extensive molecular/population genetics experience
George R. Sedberry, Ph.D.; Associate Marine Scientist, MRRI; extensive fisheries research experience
John C. McGovern, Ph. D.; Assistant Marine Scientist; extensive fisheries research experience

Project Objective: To identify the stock structure of scamp, black and red grouper based upon genetic analysis of mitochondrial and nuclear DNA. To examine the genetic variation within and among populations of these species. To test the hypothesis that changing sex ratios in protogynous species results in changes in the genetic structure of populations.

Specific Priority(ies) in Solicitation to which Project Responds:
2. Reef Fish.
Subsection c. [4c] effect of reproduction mode on population size and Subsection c. (7) Fishing pressure on genetic structure of protogynous hermaphrodites

Summary of Work (For Continuing Projects, Include Progress to Date): Previous studies of red and black groupers indicate that disjunction distributions exist in several regions of their range. The extent to which these disjunctions influence the population structure of these species is not known, but they are important to understanding the effects of fishing pressure in one region on recruitment processes in another. In addition, these species are protogynous hermaphrodites aud it has been suggested that fishing pressure preferentially removes males from the population. This would be translated into a reduction in effective breeding sizes of the populations and a reduction in genetic variation. Previous studies of genetic variation in gag in our lab suggest that such process may well be in operation. The proposed research will examine the genetic structure of scamp red and black grouper to determine if distribution gaps indicate distinct populations. We will also test the hypotheses that fishing pressure results in a diminished population size and reduces genetic variation.

	Year 1	Year 2	Year 3	Total
Project Funding:				
Federal Share	$92,512	$92,507	$91,652	$276,672
Applicant Share	$11,288	$11,323	$11,287	$33,898
Total	$103,800	$103,831	$102,939	$310,570

NA87FF0425

MARFIN PROJECT SUMMARY

Project Title: Stock Structure of Red Snapper in the Northern Gulf of Mexico: Is their Management as a Single Unit Justified Based on Spatial and Temporal Patterns in Otolith Microchemistry?

Project Status/Duration: New ____ Cont. X Project Period: 36 Months

Name, Address, and Telephone Number of Applicant:
University of South Alabama
Department of Marine Sciences
LSCB Rm. 25
Mobile, AL 36688-0002
Phone (334) 460-7136 Fax (334) 460-7357
e-mail: jcowan@jaguarl.usouthal.edu

Principal Investigators and Brief Statement of Qualifications:
Principal Investigator: Dr. James H. Cowan, Jr.-15 years experience in fish life history studies including otolith microchemistry.
Co-Principal Investigator: Dr. John Gold *25* years experience in genetics research with emphasis on stock identification; and, Dr. Charles A. Wilson- 20 years experience with research on age, growth, and reproductive biology of numerous fish species.

Project Objectives:
We have joined forces in this interdisciplinary, interstate effort to combine scientific expertise in molecular biology (Gold), otolith microchemistry (Cowan) and red snapper life history (Wilson) to address critical questions regarding red snapper biology. The central goal of the project is to provide scientific information critical to the management and conservation of the red snapper resource in the Gulf of Mexico. The primary objective to which all three lines of investigation are focused is a rigorous assessment/determination of the population (stock) structure of Gulf red snapper.

Specific Priority(ies) in Solicitation to Which Project Responds:
Priority 1 - Bycatch: a. (2) concerning status and condition of fish stocks significantly impacted by shrimp trawl bycatch, with emphasis on red snapper. Priority 2 - Reef Fish: a.(1)(a) Collection of basic biological data: a.(1)c. provide production-style aging program. a.(2)(a) and (b) reproductive studies: a.(4)(a) stock structure, b.(7) development of innovative methods of stock assessment: c. (3).characterization and evaluation of biological impacts.

Summary of Work to be Performed:
For red snapper in the northern Gulf, we will determine: (i) population (stock) structure across the northern Gulf: (ii) relative contribution(s) of regional nursery areas to offshore reef assemblages: (iii) long-term movement and mixing rates across the northern Gulf; (iv) the (genetic) effective population size (Ne) of sub-regional groups; (v) patterns of genetic variation/diversity and (genetic) effective population size over decadenal time scales to determine if stock size in the Gulf has decreased significantly over the last two-three decades; (vi) if bycatch in shrimp trawls off the Texas and Louisiana coasts represent a random sample from the subregion; (vii) nursery origin of juveniles taken as bycatch; (viii) growth rates of samples from different subregions in the northern Gulf; and, (ix) reproductive biology.

Budget for Otolith Microchemistry Subproject:

	Year 1	Year 2	Year3	Total
Project Funding:				
Federal	$58,617	$63,146	$65,593	$187,356
Non-Federal	$23,135	$13,945	$15,292	$52,372
Total	$81,752	$77,091	$80,885	$239,728

NA87FF0426

MARFIN PROJECT SUMMARY

Project Title: Stock Structure of Red Snapper in the Northern Gulf of Mexico: Is Their Management as a Single Unit Stock Justified Based on Spatial and Temporal Patterns of Genetic Variation, Otolith Microchemistry, and Growth Rates?

Project Status/Duration: New ____ Cont. X Project Period: 36 Months

Name, Address, and Telephone Number of Applicant:
Texas A&M Research Foundation
P.O. Box 3578
College Station, Texas 77843
Phone: (409) 845-8629

Principal Investigators and Brief Statement of Qualifications:
Principal Investigator: Dr. John Gold (voice: 409-847-8778; e-mail: goldfish@tamu.edu - 25 years experience in fish molecular genetics with emphasis on population structure
Co-Principal Investigators: Dr. Charles Wilson - 20 years experience with research on age, growth, and reproductive biology of numerous fish species; and Dr. James Cowan - 15 years experience in fish life history studies including otolith microchemistry.

Project Objectives:
We have joined forces in this interdisciplinary, interstate effort to combine our scientific expertise in molecular biology (Gold), otolith microchemistiy (Cowan), and red snapper life history (Wilson) to address critical questions regarding red snapper biology. The central goal of the project is to provide scientific information critical to the management and conservation of the red snapper resource in the Gulf of Mexico. The primary objective to which all three lines of investigation are focused is a rigorous assessment/determination of the population (stock) structure of Gulf red snapper.

Specific Priority(ies) in Solicitation to Which Project Responds:
Priority 1 - Bycatch: a.(2) status of fish stocks significantly impacted by shrimp trawl bycatch,
Priority 2 - Reef Fish: a.(l)(a) basic biological data: a.(1)c. production-style aging program. a.(2)(a) and (b) reproductive studies: a.(4)(a) stock structure, b.(7) development of innovative methods of stock assessment: c. (3). characterization and evaluation of biological impacts.

Summary of Work to be Performed:
For red snapper in the northern Gulf, we will determine: (i) population (stock) structure across the northern Gulf; (ii) relative contribution(s) of regional nursery areas to offshore reef assemblages; (iii) long-term movement and mixing rates across the northern Gulf; (iv) the (genetic) effective population size N_e of subregional groups; (v) patterns of genetic variation/diversity and (genetic) effective population size over decadenal time to determine if stock size in the Gulf has decreased significantly over the last two-three decades; (vi) if bycatch in shrimp trawls off the Texas and Louisiana coasts represent a random sample from the subregion; (vii) nursery origin of juveniles taken as bycatch; (viii) growth rates of samples from different subregions in the northern Gulf; and (ix) reproductive biology.

Budget for Genetics Subproject:

	Year 1	Year 2	Year 3	Total
Project Funding:				
Federal	$122,159	$138,476	$143,899	$404,534
Non-Federal	$28,441	$29,461	$30,383	$88,285
Total	$150,600	$167,937	$174,282	$492,819

NA17FF2008

MARFIN PROJECT SUMMARY

Project Title: Stock Structure of Red Porgy, Pagrus pagrus, in the North Atlantic

Project Status/Duration: New __X__ Con't ____ **Project Period:** 36 Months

Name, Address, and Telephone Number of Applicant:
Amy 0. Ball
Marine Resources Research Institute
SC Department of Natural Resources
P.O. Box 12559
Charleston, SC 29422-2559
Phone: (843) 762-5106, FAX: (843) 762-5110
e-mail: ball@mrd.dnr.state.sc.us

Principal Investigator(s) and Brief Statement of Qualifications:
Amy 0. Ball, Ph.D.; Biologist III, SCDNR; extensive research experience with genetic stock identification and project management
George R. Sedberry, Ph.D.; Senior Marine Scientist, SCDNR; extensive fisheries and stock identification research; experience with project management
Robert W. Chapman, Ph.D.; extensive molecular and population genetics experience; experience with project management

Project Objective: To determine stock identification in red porgy by examining variation in mtDNA and nuclear microsatellites. To define fishery management units based on genetic stock structure, life history characteristics, and jurisdiction. To determine the effects of fishing on the population, biology, and management of red porgy in the South Atlantic Bight and Gulf of Mexico.

Specific Priority(ies) in Solicitation to Which Project Responds:
Federal Register 66(36):11151. 2.a.(3) and 2.a.(4). 2.Reef fish. a. Collection of basic biological data for species in commercially and recreationally important fisheries. (3)Recruitment of Reef fish. (4)Stock structure of reef fishes.

Summary of Work: (For continuing projects, include progress to date)
The red porgy, Pagrus pagrus, is a protogynous sparid that is of commercial and recreational importance throughout its range. The species is found in the North and South Atlantic Oceans; however, it is unknown if there are separate stocks within the range. Off the southeastern United States (South Atlantic Bight, SAB), sustained heavy fishing pressure over two decades has resulted in a severely overfished population that has a smaller size at age, maturation (females), and sexual transition in the 1990's than during the late 1970's. This has resulted in closures of the fishery in the southeast Atlantic; however, the Gulf of Mexico fishery has not been subjected to such drastic measures and the stock appears to be in better condition in the Gulf. In the eastern Atlantic, red porgy populations have recently experienced a resurgence, with increased abundance and larger size. A year class of very large fish occurred in 1998 and this presumed year class had not been previously observed in the fishery. We propose to use molecular techniques to determine if there are distinct stocks of red porgy in the Gulf of Mexico and SAB, and to determine the relationship of these stocks to the eastern North Atlantic and South Atlantic Ocean.

Project Funding:	Year 1	Year 2	Year3	Total
Federal	$ 83,544	$100,216	$ 96,332	$280,092
Non-Federal	$ 16,006	$ 16,006	$ 16,006	$ 48,018
Total	$ 99,550	$116,222	$112,338	$328,110

NA97FF0349

MARFIN PROJECT SUMMARY

Project Title: Partitioning Release Mortality in the Undersized Red Snapper Bycatch: Comparison of Depth vs. Hooking

Project Status/Duration: New X Cont ____ Project Period: 24 Months

Name, Address, and Telephone Number of Applicant:

Karen M. Burns
Program Manager
Fisheries Biology Mote Marine Laboratory
1600 Ken Thompson Parkway
Sarasota, FL 34236
Telephone: (941) 388-4441; Fax: (941) 388-4242; e-mail: kburns@mote.org

Principal Investigator(s) and Brief Statement of Qualifications:
Karen M. Burns is the Principal Investigator of 8 (eight) successfully completed and 1 (one) recently awarded MARFIN project, as well as the Principal Investigator of MML's Reef Fish and Coastal Pelagic Tagging Program. She supervised a Master's thesis on red snapper survival in 1997.
Raymond R. Wilson, Jr., Ph.D., Associate Professor, Dept. of Bio Sciences, California State U., Long Beach. Principal Investigator on 3 (three) reef fish studies on survivorship of undersized red groupers, funded by S-K/MARFIN and NURP at Wilmington. Supervisor of 2 (two) Master's thesis on red groupers.

Project Objective: To provide data on red snapper discard mortality by depth and gear.

Specific Priority(ies) in Solicitation to which Project Responds:
(C) Management of reef fish.
1. Research in direct support of management, including catch and release mortalities
(B) 2. Source and quantification of natural and human-induced mortalities, including release mortality estimates for charter boats, headboats, and private rec vessels esp. for red snapper and the grouper complex.
(A) 4. Stock structure of reef fish
a. Movement and migration patterns of commercially and recreationally valuable reef fish species.

Summary of Work: (For continuing projects, include progress to date)
I. Use hyperbaric chambers to simulate field conditions in the lab to investigate the effect of rapid pressure changes on red snapper physiology.
II. Tag red snapper caught aboard charter boats, headboats and rec vessels using circle hooks and compare results with red snapper returns from J hook captured fish.
II. Compare acute mortality of red snapper caught by J vs. circle hooks.

	Year 1	Year 2	Year 3	Total
Project Funding:				
Federal	$60,000	$56,871		$116,871
Non-Federal	$38,154	$32,423		$70,577
Total	$98,154	$89,294		$187,448

NA97FF0348

MARFIN PROJECT SUMMARY

Project Title: Investigating Movement Patterns and Spawning Habitat of Red Hind Grouper in a Newly Established Marine Fishery Reserve in the US Virgin Islands.

Project Status/Duration: New XX Cont ____ Project Period: 24 Months

Name, Address, and Telephone Number of Applicant:
Richard S. Nemeth
Eastern Caribbean Center University of the Virgin Islands
St. Thomas, US Virgin Islands 00802
Phone: (340) 693-1389

Principal Investigator(s) and Brief Statement of Qualifications:
Richard S. Nemeth, Ph.D. - Strong background in fisheries science (BS, MS) and reef fish ecology (Ph.D.) Entire Ph.D. utilized diving research (NAUI dive master, 1500+ hours). Experience in fish tagging (sonic, Floy, coded wire, elastomer injection). P.I. has spent past 7 yrs conducting Caribbean reef fish population surveys and fish recruitment studies.

Project Objective: (1) Evaluate effectiveness of Red Hind Bank Marine Fishery Reserve by documenting location and size of grouper spawning aggregations & reef fish community structure.
(2) Investigate the source of groupers spawning in Red Hind Bank using tag/recapture and sonic tracking programs and produce an area utilization map of adults in USVI region.

Specific Priority(ies) in Solicitation to which Project Responds: Areas of special interest in REEF FISH section: C2 - Evaluation of Marine Reserves as fisheries management tool; A4a - Movement and migration patterns of commercially important fish, B6 - assess tag performance on groupers.

Summary of Work: (For continuing projects, include progress to date) The Red Hind Bank will soon be established as the first Marine Fishery Reserve in the US Virgin Islands. It is unique in that the site includes the only known red hind grouper spawning aggregation site. Establishment of a MFR offers the unique opportunity to assess and evaluate the effectiveness of MFR's as a management action by documenting the response of reef fish populations released from 20+ years of heavy fishing pressure. We propose to visually survey reef fish population structure & density of red hind grouper spawning aggregations over a two year period. An intensive tag/release/recapture program and sonic tracking of aggregating groupers will provide some of the first information on the source of groupers spawning at that site. Target tagging #15 will be 2500 fish tagged with external Floy tags and 10 sonic tagged and tracked individuals. We will assess tag performance over 1.5 years to enhance future estimate of vital population parameters. We will also produce area utilization maps for red hinds based on a synthesis of 2 year tag recovery program and sonic tracking data. These baseline data will provide fishery managers essential information on MFR's. These data will also complement NMFS' side-scan-sonar survey of the VI and PR shelf.

	Year 1	Year 2	Year 3	Total
Project Funding:				
Federal	$90,000	$51,423		$141,423
Non-Federal	$38,050	$21,886		$59,936
Total	$128,050	$73,309		$201,359

NA17FF2015

MARFIN PROJECT SUMMARY

Project Title: Marine Reserve Effectiveness in Restoring Coastal Food Webs: An Experimental Test using the Special Protection Areas and an Ecological Reserve in the Florida Keys National Marine Sanctuary

Project Status/Duration: New: __X__ Con't: _____ Period: 24 Months

Name, Address, and Telephone Number of Applicant:
Dauphin Island Sea Lab/Marine Environmental Sciences Consortium
101 Bienville Boulevard
Dauphin Island, AL 36528
Phone: (251) 861-2141

Principal Investigator(s) and Brief Statement of Qualifications:
John F. Valentine - Current investigations focus on the role of biotic processes in controlling the flow of energy among trophic levels in marine habitats, particularly herbivory on seagrasses; the application of conservation techniques for the protection of nearshore marine ecosystems; the use of marine protected areas to test the impacts of higher order consumers on the strength of trophic linkages between seagrass and coral reef habitats.

Project Objective: To inform scientists, managers and conservationists about the importance of linkages among habitats and landscape-scale considerations in the design of tropical marine reserves.

Specific Priority(ies) in Solicitation to Which Project Responds:
Section 8.c.2. Evaluation of the use of marine reserves as an alternative or supplement to current fishery management practices and measures for reef fish.

Summary of Work: (For continuing projects, include progress to date)
Scientists and conservationists alike are increasingly concerned that the harvesting of large predatory fishes has caused significant alterations in the structure and function of marine ecosystems. Marine reserves are being used as a tool to address this problem, but there has been little examination of (i) how fishing has altered food webs on reefs and adjacent habitats or (ii) how landscape-scale considerations should be included in the design of reserves. In addition, most reserves are small, unreplicated, designed around just one habitat type (usually a coral reef), and studies of marine reserves overlook the connectivity between coral reef and adjacent seagrass habitats, as well as the importance of reef structural complexity and geometry on the re-establishment of large predators. We propose to take advantage of the rare opportunity to use replicated "no-take" (predator rich) and unprotected (predator poor) reefs in the Florida Keys National Marine Sanctuary to assess the impact of large piscivorous fishes on food web structure in and around the coral reefs, the importance of linkages among seagrass and coral reefs in the re-establishment of these food webs, and the effects of habitat structure (complexity and fragmentation of reefs) on the success of marine reserves.

	Year 1	Year 2	Year 3	Total
Project Funding:				
Federal	$ 86,644	$ 96,934		$183,578
Non-Federal	$ 41,214	$ 43,388		$ 84,602
Total	$127,858	$140,322		$268,180

NA87FF0434

MARFIN PROJECT SUMMARY

Project Title: Maintenance of Critical Fish Spawning Habitat: Reproduction of the Ivory Tree Coral, *Oculina Varicosa*

Project Status/Duration: New ____ Cont. __X__ Project Period: 24 Months

Name, Address, and Telephone Number of Applicant:
Dr. Craig M. Young
Harbor Branch Oceanographic Institution
Phone: (561) 465-2400, X303

Principal Investigator(s) and Brief Statement of Qualifications:
Dr. C. M. Young, Senior Scientist, Harbor Branch Oceanographic Institution

Project Objective:
To investigate reproduction in shallow and deep water populations of *oculina varicosa*, with a view to enhancement of restoration efforts in the deep water populations.

Specific Priority(ies) in Solicitation to which Project Responds:
2.3.C
2.8.c(2)

Summary of Work: (For continuing projects, include progress to date)
To provide information needed for management of critical fish spawning habitats and feeding grounds in a Marine Fisheries Reserve. Processes influencing the maintenance and recruitment of the reef forming coral, *oculina varicosa* will be investigated. DNA sequencing of morphologically distinct deep-water and shallow-water forms will be compared to determine whether differences have a genetic basis. Monthly samples of shallow corals and quarterly samples of deep corals will be analyzed histologically to determine periodicity of reproduction, and biochemically to determine how internal cycling of nutrient reserves relates to fecundity and reproductive cycles. Embryos and larvae will be cultured in vitro for use in studies of larval dispersal potential and settlement choices, and will also be outplanted as juveniles to assess suitability of the different habitats for growth and survival of recruits. Environmental parameters (depth, salinity, temperature, current, light, nutrients, chlorophyll) will be monitored for incorporation into predictive models of larval dispersal and recruitment.

Project Funding:	Year 1	Year 2	Year 3	Total
Federal	$32,931	$35,465		$68,396
Non-Federal	$31,830	$33,586		$65,416
Total	$64,761	$69,051		$133,812

NA97FF0041

MARFIN PROJECT SUMMARY

Project Title: Renewal of an observer program to monitor the directed commercial shark fishery in the Gulf of Mexico and South Atlantic

Project Status/Duration: New __X__ Cont _____ Project Period: 12 Months

Name, Address, and Telephone Number of Applicant:

George H. Burgess
University of Florida
Gainesville, FL 32611

Principal Investigator(s) and Brief Statement of Qualifications:
George H. Burgess: 25 years in marine biological research, ichthyology specialty including elasmobranchs

Project Objective:
To continue a cooperative shark resource data collection system to enhance the reliability of management strategies for the fishery of the Atlantic Ocean

Specific Priority(ies) in Solicitation to which Project Responds:
5. General - improved understanding and management of fishery data collection, management, analysis, and conservation

Summary of Work: (For continuing projects, include progress to date)
This program will re-establish and expand a cooperative shark resource data collection system designed to enhance the reliability of subsequent management strategies for the shark fishery of the Atlantic, providing accurate data on species composition and fishery effort as well as ground-truthing to mandatory logbooks. Objectives are: 1) renew and expand an established observer program aboard cooperating shark fishing vessels during two semi-annual fishing seasons in the South Atlantic (North Carolina and Atlantic Florida) and Gulf of Mexico (Gulf Florida and Louisiana); 2) provide baseline characterization data on the species composition, relative abundance, and size composition within species for the "large" and "small coastal" shark species groups by depth and season in each regional fishery; 3) increase the knowledge of the biology of the important species taken in the fishery; and 4) disseminate pertinent information about the program, as necessary and requested, to various management, scientific, and public interest groups.

Project Funding:	Year 1	Year 2	Year 3	Total
Federal	$149,910			$149,910
Non-Federal				
Total	$149,910			$149,910

NA87FF0427

MARFIN PROJECT SUMMARY

Project Title: Stock Structure in Dolphin, *Coryphaena hippurus*, in the Western Central Atlantic, as Determined by Molecular Genetics Techniques.

Project Status/Duration: New ____ Cont. X Project Period: 36 Months

Name, Address, and Telephone Number of Applicant:
Robert W. Chapman
Marine Resources Research Institute
P.O. Box 12559
Charleston, SC 29422-2559
Phone: (843) 762-5402; FAX (843) 762-5110

Principal Investigators and Brief Statement of Qualifications:
Robert W. Chapman, Ph.D.; Associate Marine Scientist, MRRI; extensive molecular/population genetics experience
George R. Sedberry, Ph.D.; Associate Marine Scientist, MRRI; extensive fisheries research experience
Hazel Oxenford, Ph.D.; Lecturer; University of the West Indies; extensive fisheries research experience
Brian Luckhurst, Ph.D.; Chief of Fisheries; Government of Bermuda; extensive fisheries research experience

Project Objective: To identify the stock structure of dolphin in the western central Atlantic upon genetic analysis of mitochondrial and nuclear DNA. To examine the genetic variation within and among populations of this species. To test the hypothesis that two distinct population or stocks exist within a region.

Specific Priority(ies) in Solicitation to which Project Responds:
3. Coastal Migratory Pelagic Fisheries.
Subsection b., Assessment and management models for coastal pelagics; and f., Information on populations of coastal pelagics concerning population size, age, and movement patterns.

Summary of Work (For Continuing Projects, Include Progress to Date): Previous studies of dolphin have suggested that two distinct stocks (a northern and southern) exist in the western central Atlantic. This hypothesis will be tested using advance molecular tools. DNA will be cloned from this species and used to identify variable microsatellite loci. Mitochondrial DNA will be analyzed by restriction endonuclease digestion of the ND-1 region. Sampling will include northern and southern aggregations in the WCA and Mediterranean and New Zealand locations. The latter locations will be used as outgroups to judge the similarities and differences found in the WCA.

	Year 1	Year 2	Year 3	Total
Project Funding:				
Federal Share	$87,294	$90,047	$85,939	$263,280
Applicant Share	$11,287	$11,286	$11,287	$33,861
Total	$98,581	$101,333	$97,226	$297,141

NA17FF2013

MARFIN PROJECT SUMMARY

Project Title: Discrimination Among U.S. South Atlantic and Gulf of Mexico King Mackerel Stock with Otolith Shape Analysis and Otolith Microchemistry

Project Status/Duration: New: X Con't: ____ Period: 24 Months

Name, Address, and Telephone Number of Applicant:
University of South Alabama
Department of Marine Sciences
Life Sciences Building 25
Mobile, Alabama 36688
Voice: (334) 861-7316
e-mail: rshipp@jaguar1.usouthal.edu

Principal Investigator(s) and Brief Statement of Qualifications:
Dr. Robert Shipp - 35 years experience with research on systematics, age and growth fisheries ecology, and fisheries management of numerous fish species.
Co-Principal Investigator: Dr. William Patterson (Post-Doctoral Scientist) - 10 years experience with research on age and growth population dynamics, fisheries ecology, and otolith microchemistry.

Project Objectives: This interdisciplinary, interstate effort expands on our previous investigations of king mackerel stock structure and mixing rates. The central goal of the project is to provide scientific information critical to the effective management and conservation of U.S. South Atlantic and Gulf of Mexico king mackerel stocks. The primary objective is to develop natural tags based on otolith microchemistry and shape analyses that will: 1) be employed to estimate the relative contribution of each stock to the winter fishery off southeastern Florida, as well as region-specific mixing proportions around peninsular Florida in winter, and 2) establish methods enabling annual estimation of stock mixing to facilitate more effective management of U.S. king mackerel stocks.

Specific Priority(ies) in Solicitation to Which Project Responds: 1. a. (2) assessment of fish stocks significantly impacted by shrimp trawler bycatch; 4. e. information on populations of coastal pelagics overwintering off North Carolina, South Carolina, Georgia, and Florida, especially concerning population size, age and movement patterns. Calculate the mixing rates for Atlantic/Gulf king mackerel on an annual basis.

Summary of Work: (For continuing projects, include progress to date)
For U.S. South Atlantic and Gulf of Mexico king mackerel we will: 1) determine natural tags based on otolith, otolith shape, and microchemistry analyses of each stock in summer when stocks are separate; 2) estimate the relative contribution of each stock to the winter mixed fishery in south Florida based on stock-specific tags developed from otolith shape and microchemistry analyses; 3) estimate the region-specific mixing proportions of each stock around peninsular Florida in winter with otolith shape and microchemistry analyses; and, 4) compare results obtained from otolith shape and microchemistry analysis methods to determine which technique is most powerful and/or cost effective. All work will be accomplished by PI Shipp, Co-PI Patterson, a master's level graduate, an undergraduate student worker. Additionally, Research Fishery Biologists at the Panama City, Florida NMFS laboratory will contribute to the project by facilitating collection of otolith samples, aiding in estimating ages of otolith samples, and in development of otolith shape analysis protocols.

Project Funding:	Year 1	Year 2	Year 3	Total
Federal	$ 78,398	$ 89,672		$168,070
Non-Federal	$ 6,359	$ 6,359		$ 12,718
Total	$ 84,757	$ 96,031		$180,788

NA87FF0420

MARFIN PROJECT SUMMARY

Project Title: An Integrated Economic Analysis of Alternative Bycatch, Commercial, and Recreational Policies for the Recovery of Gulf of Mexico Red Snapper.

Project Status/Duration: New ____ Cont. __X__ Start: January 1, 1999 End: December 31, 2000

Name, Address, and Telephone Number of Applicant:
Dr. Richard T. Woodward
Dept. of Agricultural Economics
Texas A&M University
College Station, TX 77843-2124
Phone: (409) 845-5864; e-mail: r-woodward@tamu.edu

Principal Investigator(s) and Brief Statement of Qualifications:
Dr. Richard Woodward is an expert in the area of dynamic optimization and sustainability. He has conducted analysis on resource management issues including fisheries, forestry and global warming. Dr. Wade L. Griffin possesses a wealth of experience in fishery economics. He has completed twenty-three projects related to the Gulf of Mexico, some of which include real effort measurement, Texas closure, TED's, finfish bycatch, and recreation demand.

Project Objective: The primary goal of this project is to conduct an economic analysis of alternative policies aimed at increasing red snapper stock levels in the Gulf of Mexico. The new bycatch-reduction policies are fractional license, fractional gear, and the buy-back of shrimp licenses. These will be compared with traditional bycatch-reduction policies (BRD's and closures) and policies directed towards the red snapper fishery including variable commercial and recreational quotas, trip limits, limited entry in the commercial fishery and bag and size limitations in the recreational fishery. The specific objectives are: (1) Modify the General Bioeconomic Fisheries Simulation Model (GBFSM) to include fractional license and fractional gear policies in the shrimp fishery and variable quotas in the red snapper fishery. (2) Using GBFSM, estimate the present value of the net gains associated with alternative bycatch and red snapper fishery policies. (3) Based on GBFSM, develop a dynamic optimization model that incorporates a sustainability criterion. (4) Using the dynamic-sustainability model, identify the policy paths that would satisfy three alternative objectives: the minimization of the cost to achieve the goal of a 20% SPR by the year 2019; maximization of the present value (PV) of the fishery; and the optimal policy that satisfies an economic sustainability criterion. (5) Estimate the increase in red snapper stocks associated with alternative fixed and flexible bycatch and red snapper fishery policies. (6) Based on the results obtained, develop policy guidelines for setting the optimal levels of bycatch reduction and commercial and recreational fishing quotas.

Specific Priority(ies) in Solicitation to which Project Responds: This proposal responds to priorities 1f (1&2) that relate to the economic considerations of bycatch reduction. The proposal considers both the issues of optimal bycatch reduction 1f (1) and alternatives to gear and season/area restrictions 1f(2).

Summary of Work:
Year 1: Incorporate new bycatch reduction policies into GBFSM (Objective 1). Evaluate the relative economic merits of the alternative policies for the recovery of the red snapper stocks (Objective 2). Begin the development of a dynamic optimization model of the Gulf shrimp and red snapper fisheries (Objective 3).

Year 2: Complete the specification of the dynamic optimization model (Objective 3). Conduct optimality analysis to identify cost efficient policies that achieve the goal of an SPR of 20%, and policies that are consistent with economic sustainability (Objective 4) and incorporate those results into GBFSM. Develop policy guidelines (Objective 6) and write final report.

	Year 1	Year 2	Year 3	Total
Project Funding:				
Federal	$40,000	$48,589		$88,589
Cost Sharing	$27,546	$26,147		$53,693
Total	$67,546	$74,736		$142,282

NA87FF0432

MARFIN PROJECT SUMMARY

Project Title: An Assessment of the Recreation Demand for Gulf of Mexico Red Snapper

Project Status/Duration: New ____ Cont. _X_ **Start:** January 1, 1999 **End:** December 31, 2000

Name, Address, and Telephone Number of Applicant:
Dr. Teofilo Ozuna, Jr.
Dept. of Agricultural Economics
Texas A&M University
College Station, TX 77843-2124
Phone: (409) 845-2335

Principal Investigator(s) and Brief Statement of Qualifications:
Dr. Teofilo Ozuna, Jr., is an expert in the area of recreation demand analysis and has published widely in this same area. He has worked on 5 projects related to the Gulf of Mexico, some of which include coastal recreational tourism impacts, collection of costs and returns data, coastal fishing benefit estimation, and estimation of recreation demand for saltwater fishing. Dr. Wade L. Griffin possesses a wealth of experience in fishery economics. He has completed twenty-three projects related to the Gulf of Mexico, some of which include real effort measurement, Texas closure, TED's, finfish bycatch. and recreation demand.

Project Objective: The primary goal of this project is to assess whether red snapper regulations, charter and private/rental boat use, and targeting single versus aggregate species have an impact on the recreation demand for red snapper and its economic value. To accomplish this goal, state-of-the-art recreation demand methodology and data from the supplemental Southeast MRFSS economic survey available in mid-1998 will be employed. Specific objectives of the study are: (1) to obtain the 1998 Southeast MRFSS survey data, examine these data using descriptive statistics, and process the data so that it is manageable for the estimation of recreation demand functions;(2) to assess whether red snapper or substitute recreation species regulations have any effect on the recreation demand for red snapper and its value; (3) to determine whether charter boat recreation demand and its value is statistically different from the private/rental boat recreation demand and its value; and (4) to ascertain if the recreation demand for red snapper and its value is statistically different from the recreation demand for an aggregate of related recreation species and their overall value.

Specific Priority(ies) in Solicitation to which Project Responds: This proposal responds to priority 5 topic g, which relates to the need for the estimation of recreation demand functions.

Summary of Work:
Year 1: The first three months will be used to obtain the data, prepare (sort, classify, arrange, etc.) the data for estimation, and review the recreation demand literature (Objective 1). An assessment of whether red snapper or substitute recreation species regulations have an effect on the recreation demand for red snapper and its value will be undertaken during the following seven months (Objective 2). The analysis of the determination of whether charter boat recreation demand and its value is statistically different from the private/rental boat recreation demand and its value will begin during the last two months of year 1 (Objective 3).

Year 2: The first five months will be used to complete objective 3 which was begun during the last two months of year 1. During the next six months, we will ascertain if the recreation demand for red snapper and its value is statistically different from the recreation demand for an aggregate of related recreation species and their overall value (Objective 4). The final month will be used to consolidate the articles that were written during the execution of objectives 2, 3, and 4 into a final report that will be delivered to MARFIN.

	Year 1	Year 2	Year 3	Total
Project Funding:				
Federal	$48,193	$49,334		$97,526
Cost Sharing	$26,853	$27,617		$54,470
Total	$75,046	$76,951		$151,996

NA87FF0433

MARFIN PROJECT SUMMARY

Project Title: Defining and Identifying Fishing Dependent Communities: Development and Confirmation of a Protocol

Project Status/Duration: New ____ Cont. _X_ Project Period: 24 Months

Name, Address, and Telephone Number of Applicant:

University of Florida
AFAS. G040 McCarty Hall
P.O. Box 110110
Gainesville. FL 32611

Principal Investigator(s) and Brief Statement of Qualifications:

Steve Jacob, Ph.D., Rural Sociology, areas of specialization: Communities and Evaluation
Suzanna D. Smith, Ph.D., Sociology, area of specialization: Family Science and Qualitative Data Collection
Charles M. Adams, Ph.D., Food Resource Economics, area of specialization: Marine Economics
David Mulkey, Ph.D., Agricultural Economics, area of specialization: Regional Economics

Project Objective:

1) To define and identify fishing dependent communities
2) To empirically evaluate the definition of fishing dependent communities and the identifying protocol

Specific Priority(ies) in Solicitation to which Project Responds:

General priority

Summary of Work: (For continuing projects, include progress to date)

Year One

1) Develop a definition of fishing dependent communities
2) Develop a protocol for identifying communities empirically

Year Two

1) To identify differing communities for in-depth case study work
2) To evaluate the definition and protocol through in-depth case study
3) To collect demographic information on fishing dependent families and for those involved in fishing related business
4) To modify and refine the definitional protocol on the basis of the research

Project Funding:	Year 1	Year 2	Year 3	Total
Federal	$70,625	$149,425		$220,050
Non-Federal	$33,517	$50,660		$84,177
Total	$104,142	$200,085		$304,227

NA17FF2011

MARFIN PROJECT SUMMARY

Project Title: Intercept Surveys of Recreational Spiny Lobster Fishermen in the Florida Keys

Project Status/Duration: New: X Con't: _____ Period: 12 Months

Name, Address, and Telephone Number of Applicant:
William C. Sharp
Florida Fish & Wildlife Conservation Commission
Florida Marine Research Institute, South Florida Regional Laboratory
2796 Overseas Highway, Suite 119
Marathon, FL 33050
Phone: (305) 289-2330

Principal Investigator(s) and Brief Statement of Qualifications:
William Sharp, Assistant Research Scientist. William Sharp has 10 years experience conducting research on the life history of the spiny lobster and with the management of the commercial and recreational fisheries of the species in south Florida.
John H. Hunt, Research Administrator. John Hunt has 20 years experience conducting research on the life history of the spiny lobster and with the management of the commercial and recreational fisheries of the species in south Florida.
Rodney D. Bertelsen, Assistant Research Scientist. Rodney Bertelsen has more than 10 years experience conducting research on the life history of the spiny lobster in south Florida and in conducting mail surveys of recreational lobster fishermen.

Project Objective: The goal of the proposed project is to acquire information on the Florida recreational spiny lobster fishery by conducting intercept surveys of recreational lobster fishermen. The study will collect catch, effort and demographic data that will be used to evaluate the accuracy of similar data generated by the Florida Fish & Wildlife Conservation Commission's (FWC) mail surveys, which are the primary source of information on the recreational fishery. The recreational fishery is experiencing increased scrutiny due to its apparent growth. Results from the proposed study will aid the FWC in developing management options for limiting the potential for growth in this fishery.

Specific Priority(ies) in Solicitation to Which Project Responds: 7c. Design and evaluation of innovative approaches to fishery management with special attention given to approaches that control access to specific fisheries.

Summary of Work: (For continuing projects, include progress to date)
The proposed work will entail conducting intercept surveys of recreational lobster fishermen throughout the Florida Keys during the Special Two-Day Sport Season and during the first month of the regular season during the 2002 fishing season. Lobster fishermen fishing in the Florida Keys will be surveyed at public boat ramps, rental boat dealers, docked charter boats, and from shore as they complete their fishing trips. Lobster landings, fishing effort, demographic, and lobster length-frequency data will be collected from each interview. The landings, effort, and demographic data gathered from these intercept surveys will be compared statistically to similar data generated by FWC mail surveys. Length frequency data are vital to convert recreational landings estimated from the mail surveys, which are in numbers of lobsters to an estimate of weight using a morphometric conversion that allows a direct comparison with commercial landings. To date, there has been no mechanism for collecting length frequency data on recreational lobster landings. Consequently, the FWC has used length-frequency data collected annually from commercial landings and assumed that no difference exists between the mean size of lobsters landed by each fishery. Length-frequency data collected during the proposed intercept surveys can be directly compared to data collected from the commercial fishery to evaluate this assumption.

	Year 1	Year 2	Year 3	Total
Project Funding:				
Federal	$ 39,017			$ 39,017
Non-Federal	$ 17,546			$ 17,546
Total	$ 56,563			$ 56,563